JANUARY 24, 1942

Railway Age

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In This Issue

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

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A *Multi-Purpose* TRACK CIRCUIT

"Union" coded track circuit control makes use of the track rails not only to detect the presence of a train, but also to control the multiple indications of automatic block signals. The use of line wires is greatly reduced or entirely eliminated and cut sections are seldom necessary.

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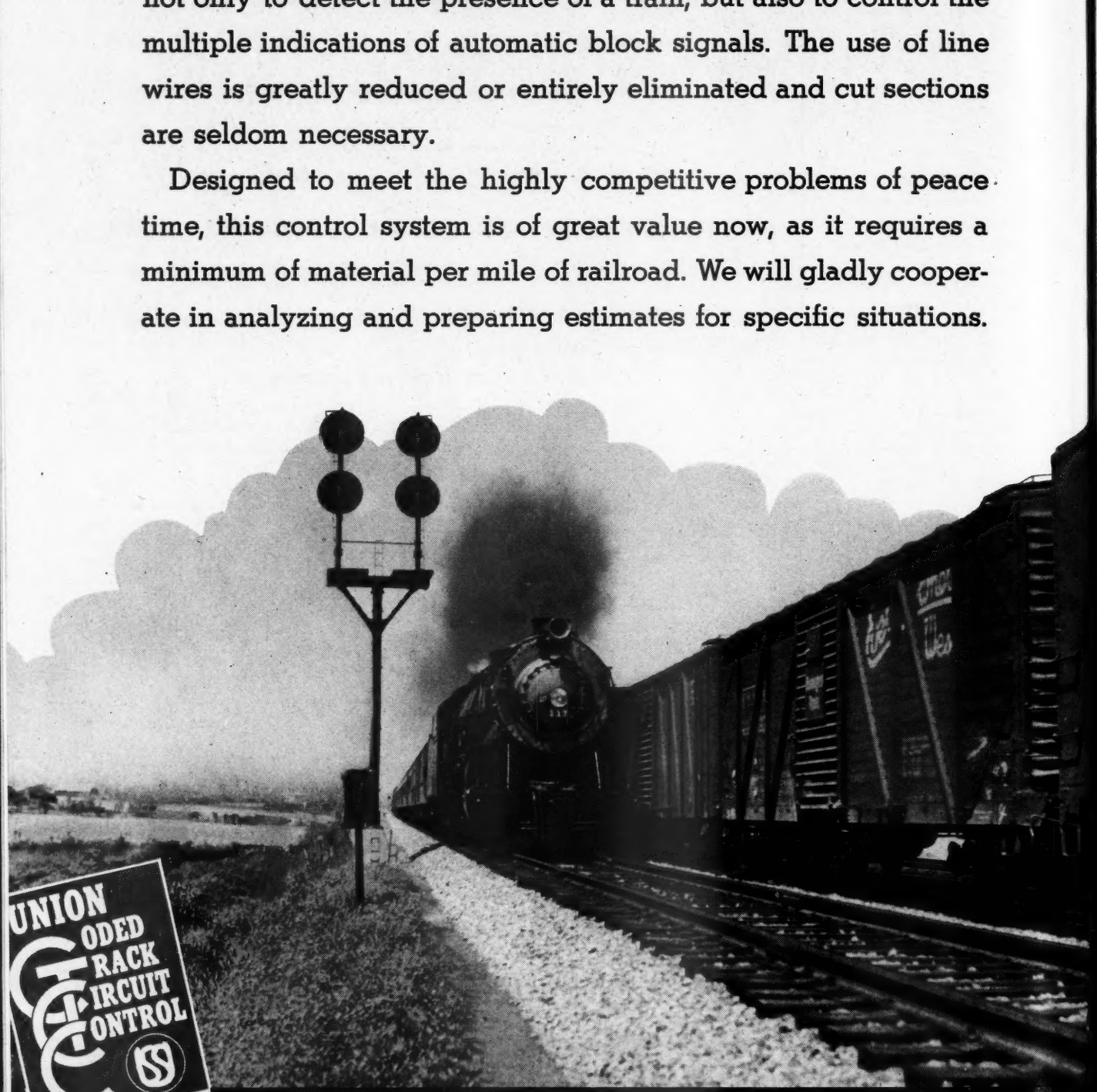

UNION SWITCH AND SIGNAL COMPANY

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The Week at a Glance

BIG WATERWAY BILL: The greatest pork barrel measure in history, the Billion-Dollar Omnibus Waterway Bill, is soon coming up for a vote in the Lower House of Congress—and the leading editorial herein devotes some attention to it. The politicians are urging everybody to save, save, save—for defense; and that's what we *all* ought to be doing if we expect to fight the war successfully. But these pork barrel fellows don't see it that way. They not only don't want to give up a dime of their non-defense extravagance with *our* money, but, at a time like this, they have the gall to seek to intensify their profligacy. There was a White House pow-wow this week on the waterway measure and some hint was passed along that "non-war" items might be eliminated from it. But what does that signify when they call even such a boondoggle as the St. Lawrence Seaway a "defense project"?

●

POVERTY FOR THE PEOPLE: In 1919 (the fiscal year, including 5 months of war) the governments (national and local) spent $201 *per capita* for all purposes, including the military. Non-defense expenditures were only $30 *per capita.* In 1940 these same governments were already spending $131 per capita, for non-military purposes alone. And the idea seems to be to *add the cost of the war on top of these extravagant non-military expenditures.* Unless these non-defense expenditures are cut down, the leading editorial herein indicates that the people are going to have to live on $248 a year each—or 30 per cent less than they had to live on in 1919; and less, even, than at the 1933 low point.

●

MILITARY RAILROADING: What the present set-up is if the Army finds it has to operate railroads in a theater of war is described in a timely article herein by the chief of the railway section in the Army Office of the Chief of Engineers. How the present organization grew out of past experience—not only here but abroad—is set forth in interesting historical outline.

●

KEEPING LOCOMOTIVES FIT: Employees and supervisors who have locomotive safety devices in their keeping need to take their responsibility more to heart. Such is the admonitory word uttered editorially herein—and based on the Locomotive Inspection Bureau's report, which was reviewed last week. Investigation shows that, occasionally, a defect was reported and written up as corrected, only to be reported again, and once more repaired with a pencil. This went on until something busted. Director Hall doesn't think much of the economy of patching up an engine every trip, hoping it will get to the next terminal without yielding up the ghost.

●

TO CONSERVE ON BRASSES: A modified design of journal bearing—saving copper, tin and other critical materials—is the subject of a letter Mechanical Division Secretary V. R. Hawthorne has sent out to member roads, as related briefly elsewhere in these pages. The carriers are asked to provide the manufacturers with pattern equipment for the new design as quickly as they can, so that the savings can begin.

●

TP&W GETS INJUNCTION: The B. of R. T. and the B. of L. F. & E., who are striking against the T. P. & W. to force it to accept "featherbed" working rules, have been enjoined against picketing the property except at certain designated points and it is ordered that pickets be unarmed. They must not carry cudgels or other instruments often associated with what is called "peaceful picketing."

●

"PENDULUM" COACHES: This novel design of passenger cars—with bodies suspended above the trucks instead of resting upon them—is described in detail in an illustrated article in this issue. The Santa Fe, the Burlington and the Great Northern each have one of these coaches in experimental service, and they are found to ride easily and quietly. The car performs at its best when coupled with others of its kind, but it goes along very well with standard equipment.

●

THE PROMISED LAND: When the proposal to establish a Transportation Study Board was still being debated on Capitol Hill (as a part of the Transportation Act of 1940), it will be remembered that the National Resources Planning Board jumped the gun on Congress by starting its own comprehensive transportation study. The Board's full formula for transportation Utopia has not been revealed, but a little glimpse of the sweet bye-and-bye is disclosed in a report of the Board to Congress, reviewed elsewhere in these pages. The planners have undertaken the modest task of outlining a project for achieving post-war "full employment, higher living standards and economic security"—and they think it "urgent" that Uncle Sam acquire the ownership of all carrier "rights-of-way," making the railroads his tenants.

●

PURPOSE IS TO SPEND $: The reason the planners advance for favoring further socialization of transportation is that they want to spend a lot of money on A. and B. to line and terminals, in order to make work—and the government can't very conveniently pour billions into property to which it doesn't hold title. Several minor doubts occur to your reporter—for instance, just how much money can the government spend for non-remunerative schemes like this when *the government's meal ticket (i. e., the taxpayers) has already got a war punched out of it?* The Planning Board calls these expenditures a "profitable investment," but, if they are profitable, then what's the use of the government sticking its nose in? Why not let private enterprise do the job? Sounds kind of screwy, when Uncle Sam is going to need his taxpayers as he never did before, to be cooking up ways to chloroform them.

GETTING RR MATERIAL: Under the new set-up of the War Production Board, which entails the scrapping of the OPM, the railroads' needs for materials will continue to be handled through the Civilian Supply Division of which Leon Henderson is the head. Donald Nelson told the press, though, on January 21 that he recognizes the need to keep transportation program geared up to the production program—and it is to be hoped that Mr. Henderson's help reads the papers.

●

NO SAND SHOVELING HERE: A sand plant which handles the stuff mechanically or by gravity at every step, and thus reduces the need for that costly article, labor, is described in an article herein. One such installation on the Western Maryland, the account reveals, turned out so satisfactorily that a second plant of the kind is now going in.

●

RAILROADS ASK FOR STEEL: The carriers and the equipment makers need 6.6 million tons of steel during 1942 and have so informed the priorities authorities. This is a reduction by one-third from the original estimate, and indicates the extent to which the carriers are co-operating with the defense program by cutting their requirements to the level of bare necessity. The program contemplates 121,827 freight cars and 974 locomotives to be built during the current calendar year.

●

WILL ODT ROUTE FREIGHT?: The answer is—No, not unless congestion develops. Mr. Eastman answered that question in a statement issued last week. He pointed out that the ODT has the power to act to divert traffic to avoid tight situations and that his traffic direction section under John Turney is expected to inform itself to permit decisive action if the need arises—but such action won't be taken unless it is necessary.

●

LIVESTOCK PICK-UP OK: The Interstate Commerce Commission, taking cognizance of changes in the law, has now found that collection of livestock shipments by carriers up to distances 10 miles from their stations is all right. Several of the commissioners are quite discontent about it though. What was good enough for grandpa is good enough for them.

●

FARES UPPED 10%: The carriers were authorized on January 21 to increase their passenger fares by 10 per cent on 10 days' notice—the increase not applying to furlough tickets for the uniformed forces.

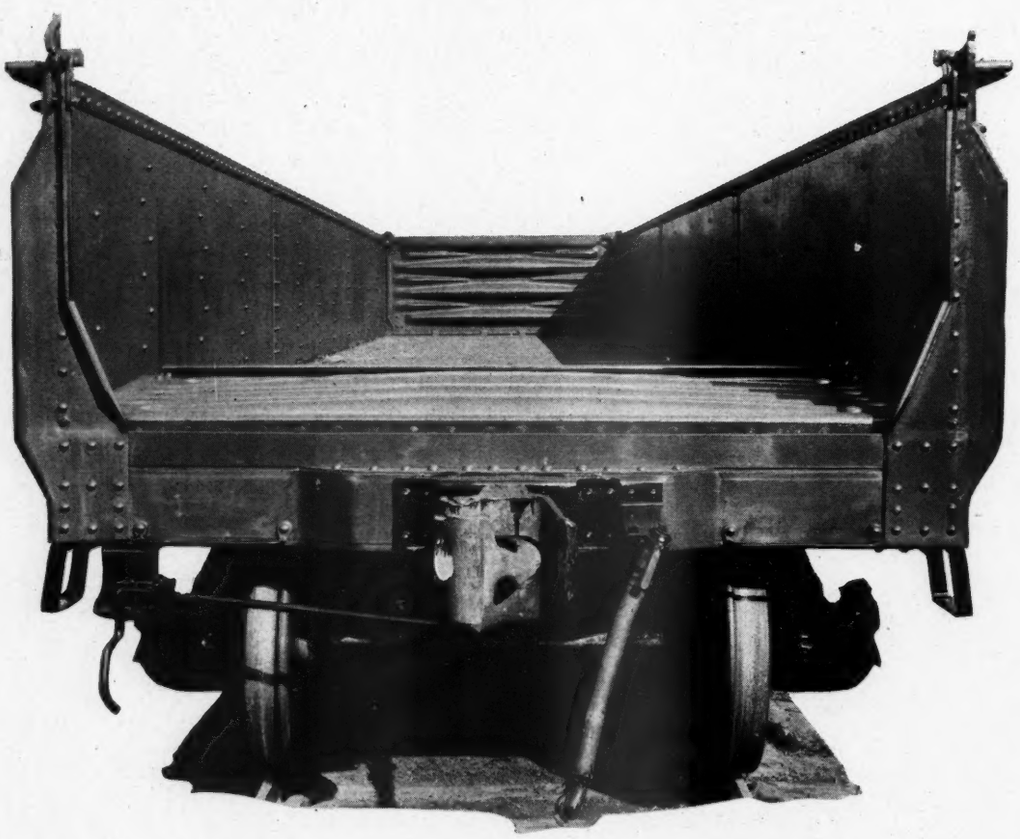
●

BIG TRUCKS SAVE RUBBER?: It beats all get out how much patriotism there is lying around loose. For example, the argument was made this week in behalf of the Big Truck Bill (i.e., permitting the I. C. C. to override states which bar behemoths from their highways) that the rubber shortage calls for the use of bigger trucks. Of course they could put the traffic from big, long-haul trucks on the rails and not use any tires at all.

DREADNAUGHT DROP END GATE

STRONG — *ABSORBS SHIFTING LOAD SHOCKS —STRENGTH IS UNIFORM—*

RUGGED — *WILL STAND ABUSE IN LOWERED POSITION*



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RAILWAY AGE

Pork Versus Victory and Taxpayers' Solvency

In the conduct of our public affairs there is being presented to the American people and the entire world today the most appalling and contemptible spectacle ever presented in our history. . This is the spectacle of federal, state and local politicians throughout the land trying to maintain or **actually increase** the already largest total **non-war** government expenditures in our history, while these same politicians are agonizingly appealing for the **people themselves** to reduce their **personal and private** expenditures of all kinds, and to buy government bonds and savings stamps to help win the war!

President Roosevelt recently was widely quoted as having said that the national income will soon be $100 billion annually and that we shall have to devote one-half of it to the war. The largest government expenditures reported for any year of the last war period were for the fiscal year ended June 30, 1919. Let us, then, on the basis of the President's forecast, contrast what occurred in that year with what these "patriotic" politicians are now threatening our people with. We give in an accompanying table the best estimates that can be made. Even when detailed figures are thus put in cold type it will be hard for anybody who has not studied the subject to believe them.

Government Spending in 1919 and 1943

The nation's population in 1919 was about 105 million and in 1943 will be at least 132 million. The national income in 1919 was about $63½ billion, or $605 per capita. Total expenditures of the federal government for **military** purposes were about $18 billion. Its expenditures for non-military purposes were about $500 million, and expenditures by state and local governments were $2,648 million—an expenditure by all governments for non-military purposes of about $3,148 million. This made total government expenditures about $21 billion—an average of about $201 per capita, or 33.3 per cent of the national income, of which $171.43 per capita was for war and about $30 per capita for non-military purposes. After these total government expenditures for both military and non-military purposes, the people had left $42 billion—$404 per capita—or 66.7 per cent of their total income that they could spend as they saw fit.

As already stated, President Roosevelt assumes a future national income—no doubt in 1943—of $100 billion, of which he estimates $50 billion will be spent for military purposes. In the year ended June 30, 1940, federal expenditures for **non-defense** purposes were about $8 billion—an increase per capita from $4.76 in 1919 to $61—and expenditures of state and local governments were $9⅓ billion—an increase from $25.20 per capita in 1919 to $70. This made a total government expenditure for **non-military** purposes $17⅓ billion in the year ended June 30, 1940—an increase from $30 per capita in 1919 to $131.

Shall Politicians Spend 67 1/3 Per Cent of the People's Income?

There has as yet been no reduction in these total government expenditures for non-military purposes; and while efforts are being made to reduce some, even more effective efforts are being made to increase others. Let us see, then, where we are heading.

If we should spend $50 billion a year on the war, and continue present total federal, state and local expenditures for **non-military** purposes, **total** annual government expenditures would become $67⅓ billion. This would be $510 per capita, as contrasted with a total government expenditure in 1919 of only $201 per capita. It would take 67⅓ per cent of the people's income and leave them only 32.7 per cent of it, whereas in 1919 total government expenditures took only 33.3 per cent of the people's income and left them 66.7 per cent of it. It would leave in the people's hands to spend themselves less than $33 billion, or only $248 per capita, whereas in 1919 there was left in their hands to spend themselves $42 billion, or $404 per capita. The national income would be **$152 more** per capita—or $36½ billion—**more** than in 1919, but the amount of it left in the hands of the people to spend themselves would be $156 per capita, or $9¾ billion, **less** than in 1919. Even in 1933, when the national income of $45 billion was the **smallest in any year of the depression,** total government expenditures—that is, expenditures by the politicians—of about $11 billion left the people more of their income to spend themselves than the poli-

ticians apparently intend to let them have to spend in 1943.

Why, in the name of all that is patriotic and holy, should our national, state and local **politicians** continue spending **$14 billion a year more for non-military purposes** than in 1919, while beseeching the **people** to spend less and less and less, and to **save, save, save,**

Population, National Income and Government Spending, 1919 and 1943

	1919	1943	Increase or decrease
Population	105,000,000	132,000,000	+27,000,000
National Income	$63,600,000,000	$100,000,000,000	+$36,400,000,000
Per Capita	$605.71	$757.58	+$151.87
Government Expenditures—			
Military	$18,000,000,000	$50,000,000,000	+$32,000,000,000
Per Capita	$171.43	$378.79	+$207.36
Non-Military—			
Federal	$500,000,000	$8,000,000,000	+$7,500,000,000
Per Capita	$4.76	$60.61	+$55.85
State and Local	$2,648,000,000	$9,300,000,000	+$6,652,000,000
Per Capita	$25.22	$70.45	+$45.23
Total Non-Military	$3,148,000,000	$17,300,000,000	+$14,152,000,000
Per Capita	$29.98	$131.06	+$101.08
Total Government Expenditures	$21,148,000,000	$67,300,000,000	+$46,152,000,000
Per Capita	$201.41	$509.85	+$308.44
Per Cent National Income	33.3	67.3	.....
National Income Left After Government Expenditures	$42,452,000,000	$32,700,000,000	−$9,752,000,000
Per Capita	$404.30	$247.73	−$156.57
Per Cent	66.7	32.7	.....

in order to make possible an expenditure of $50 billion a year on the war?

The Billion Dollar Waterway Pork Barrel

And, now, in this connection we call attention again to the most outrageous proposal, considering the circumstances, for increasing government expenditures that has ever been made in the history of Congress. If there is any one point on which all thoughtful and **patriotic** Americans agree it is that we should all make unprecedented sacrifices to assure the earliest possible success of the war effort. The enemy doesn't say, as he lets fly a shell or drops a bomb: "Here is where I blast a New Dealer, or an Old Dealer, or a Congressman, or a farmer, or a banker, or a member of the C. I. O." He is satisfied if he scores a hit, regardless of the color, creed, financial status, or political affiliation of the American he hits. Under such circumstances of attack from without, any American who grossly plays internal politics, with consequent discouragement of unanimity in our war effort, is a scoundrel or a fool. And no term less harsh is adequately descriptive of the waterway fanatics in Congress who have chosen this time to promote their notorious Billion-Dollar Omnibus Pork Barrel Bill. The Rivers and Harbors Committee of the House is seeking a rule to bring this measure to a vote, and indications are the rule will be granted.

The President has been conferring with Congressional leaders on this measure and there is some talk of removing from it those projects "not connected with the war effort." How little this may mean is evident when it is recalled that the preposterous St. Lawrence Seaway is one of its authorizations, which federal officeholders, with mysterious unanimity, have repeatedly insisted is urgently required for reasons of defense—a contention so obviously contrary to common-sense that no one with a clear head and a clear conscience could make it.

Sacrifices from Everybody Except Politicians?

Under a democratic government, sacrifices cannot be imposed beyond the willingness of the people to bear them. The people will bear a great deal when confident the sacrifices demanded are uniform. There is little objection to the draft, despite the great sacrifices it entails, because the men selected have no occasion to believe they are being discriminated against. And nothing could stimulate the people generally more to acceptance of heavy burdens than the example of a spirit of sacrifice by the political leaders who impose the burdens—or more quickly turn them cynical and impel them to shirk than evidence that the Washington lawmakers are unwilling to do their share of sacrificing for the common safety.

March 15 is not far off. On that day even the little fellow who earns only $15 a week will have to pay some of his meager wage toward financing the war effort. Under the 1941 federal tax act the ordinary American citizen will stagger under the heaviest imposts he has ever paid; and another federal tax bill is under consideration which will more than double the load. Businesses are closing down, because their raw materials have been diverted to the manufacture of munitions. Thousands of automobile and tire dealers and salesmen are being left without incomes. When men are called for military service they are expected to respond without protest—with the certain deprivation of income and the possible loss of limb or life which such service inevitably entails.

$34 More in Taxes Per Family—for Political Pork

All these sacrifices, hard as they are, are necessary in order that the war may be won, and the struggle may not be unduly prolonged. But how about the waterway bloc in Congress? Has the spirit of sacrifice imbued it? Hardly. Instead of reducing its demands on the taxpayers it is asking authorization of the biggest waterway program in history. In one single measure it proposes expenditures on waterways 45 per cent as large as have been made on them in the past 100 years. On top of all their other burdens, each average American family is called upon by the waterway bloc to pay $34 more to construct a grandiose system of canals—as an outright donation to the relatively few big shippers and limited geographical areas that can avail themselves of such facilities.

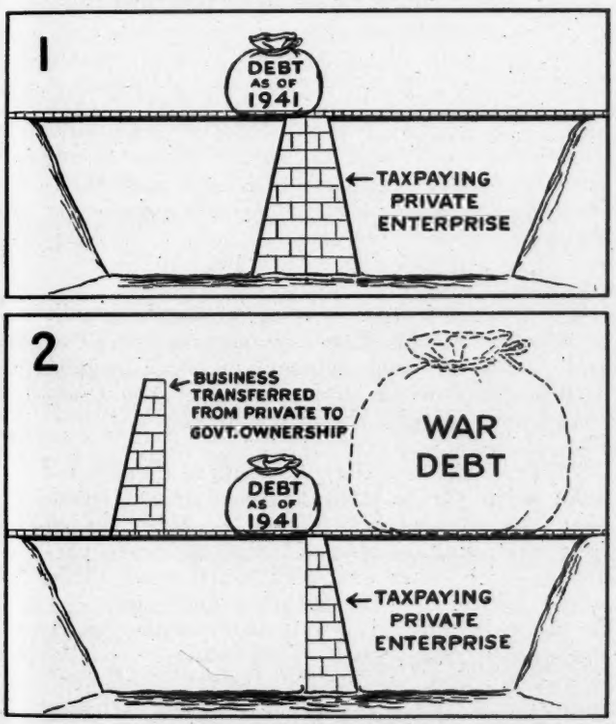
If Congress should enact this shameful measure, and thereby demonstrate to the people that it is less interested in winning the war than in buying the venal votes which are swayed by such federal outlays, the bars will

be down to all the other privilege-seekers. If Congress at such a time can be persuaded to vote a 45 per cent increase in the inland waterway system, why not also a 45 per cent increase in the federal-aid highway system? Why should not manufacturers with government contracts demand larger profits and their employees more advances in wages? Why not another soldiers' bonus?

Country Needs More Tax-Paying, Less Tax-Eating, Business

But what would be infamous and disastrous if everybody sought it is no less infamous because sought only by a small group. We are aware of the specious argument that this is not a waterway appropriation bill, but only an authorization measure. But if it is not a pre-

When the Load on a Bridge Is Increased, Is It Wise to Weaken the Supporting Structure?



(1) Shows the Burden of Public Debt as It Is Now and (2) How It Will Look After the War—with the Supporting Tax Base Reduced, if the Transportation Socializers Have Their Way

lude to the spending of **at least** a billion dollars on waterways (these projects usually cost two or three times the original estimates), why does the waterway bloc seek its enactment? This is a familiar form of parliamentary trickery. Doubtful members are urged to approve an "authorization" measure on the plea that no final commitment is involved. Thereafter the authorization is called a "pledge," and the weak brothers who were cajoled into voting for it are bombarded with demands not to break a "solemn promise."

The waterway bloc supports its fantastic program by representing it as a postwar employment scheme. But the federal debt of 150 billions which will weigh the nation down at the end of this war will be a charge on private enterprise. What zanies, then, the American people would be at such a time to withdraw a large share of the transportation business from the railroads, which are heavy contributors to the costs of government, and from motor transportation, which makes some contribution to governmental costs, and divert it to inland waterways, which yield no taxes whatever.

This Omnibus Pork Barrel Bill was reviewed in some detail in the *Railway Age* of December 20, page 1023. As then shown, the measure includes 236 separate projects—which, on its face, might look like enough to include considerable "benefits" for more than half the Congressional constituencies. But appearances are deceiving. Fourteen of the projects (averaging an estimated cost of $62,705,000 each) would consume 89 per cent of the total expenditure, leaving only 11 per cent to be divided among 222 projects at an average of $500,000 apiece.

Waterway Program Will Burden All Voters, Benefit But Few

The waterway bloc Congressmen who have one of the $63-million-average projects in their districts doubtless believe they can count on the support of all or most of their colleagues to whose districts they have allotted a few paltry thousands for dredging the local creeks. But the program is so ridiculous from the standpoint of the self-interest of a majority of Congress, as to constitute a very low appraisal of their patriotism.

Even if a representative in Congress be assumed to have no higher motive than that of getting more out of the federal treasury for his constituents than they have to pay into it in taxes, why should he vote a levy of $34 per family on his constituents (which is what this Omnibus Pork Barrel Bill would cost), in return for, say, a local expenditure of only $500,000, which would figure out at $7 per family in the Congressional district of average size? Moreover, the "benefits" of the local expenditure would accrue to only a handful of the representative's constituents, while a share of the expense would fall on every one of them. The waterway enthusiasts who have such projects as the St. Lawrence Seaway, the Mahoning Canal, the Tombigbee waterway and a few such choice plums in their districts have a low estimate of the intelligence of a large majority of their colleagues, if they believe their support can be purchased by tossing out among them a couple of hundred measly local dredging jobs.

As was pointed out in our December 20 issue, there is a Transportation Study Board recently appointed under act of Congress now investigating, for report to Congress, the relative economy and fitness of the various forms of transportation; and for Congress to go ahead and vote a billion dollars to expand further the nation's waterway plant before this board has issued

its report, would be for Congress completely to stultify itself in creating this board.

If, as we believe, a majority of Congress is composed of patriotic men, including even many who in normal times might favor waterways expansion, then this bill will go down to ignominious defeat when it comes to a vote, as evidence to all that Congress will go as far in sacrificing political luxuries during the national crisis as it demands the people shall go in sacrificing their incomes and their ordinary way of life. The bill will be defeated even if a majority of Congress, although lacking in self-sacrificing patriotism, will make the simple computations necessary to show them that the bill would cost the average Congressman's average constituent far more in taxes than it could possibly yield him in "benefits."

In view of the enormous total expenditures for **non-military, political** purposes being continued by our federal, state and local politicians, while the people are being called upon to make such great sacrifices, the passage by Congress now of this infamous Pork Barrel Bill would be notice to the Fuehrer, the Duce and

Shuffling Traffic in the Interest of Efficiency

There are many occasions when business organizations hesitate to abandon policies which they recognize as inherently unsound—because of the licking they fear they would take in the *transition* to sounder policies. It is unfortunate, but it is nevertheless true, that the manager of a business is, and often has to be, more concerned with immediate than with long-range results.

But now and then occasions arise when immediate results do not present such a troublesome problem—and such occasions give the business manager an opportunity to correct his policies, without risk, to accord with sound long-range principles. Such an opportunity now presents itself with respect to the more economic division of traffic between railroads and trucks.

It has long been recognized by competent observers that trucks have invaded long-haul transportation to a far greater degree than the natural economy of truck operation (i. e., low-cost terminal handling, high-cost line-haul) entitles them. Conversely, the railroads, by maintaining (however unwillingly) unremunerative services for some commodities on short-hauls, have been denying to the trucks a tonnage which economically belongs to them. But the railroads have hesitated to make the rate reductions necessary to recoup the long-haul tonnage lost to trucks, because of reluctance to absorb revenue losses on the dwindling competitive traffic still on the rails. They have likewise not pressed for permission as vigorously as they might have, to cease catering to short-haul business which is unremunerative—relinquishing such tonnage to trucks.

Some of the insistence of the organized truck operators that "umbrella" rates be continued, to permit them to operate uneconomically in the long-haul field, has undoubtedly been occasioned, less from conviction in favor of this unsound practice, than from dread of the immediate losses they might sustain during a period of readjustment of operations in the interests of more economic division of traffic.

Immediate earnings or traffic volume are, however, for the moment, no cause of concern to either the railroads or the truck operators (provided, as seems likely, the regulatory authorities will permit both agencies to establish an over-all rate level which will allow for their increased labor costs).

Neither the railroads nor the truck lines, at the present time, would notice unfavorable results from a fractionally-small shuffle in tonnage between them. Indeed, both of them will be handling about all the business they can move—and *it is to the interest of both of them that they deal with this traffic as efficiently as they can.* If they fail to do so, the result may be conditions which might bring government ownership.

The rate adjustments necessary to give the railroads the long-haul traffic which, in the interest of the national economy, they ought to have—combined with regulatory sanction for railroad withdrawal from such traffic as clings to the rails when it ought to move by truck—can *now* be made without noticeable injury to the immediate gross or net earnings of either trucks or railroads. The long-run benefits of such a shuffle in traffic—to the transportation industry, to the shipping community and to the national economy—are so obvious that they need not be argued. But, most important of all, in view of the growing tightness in transportation, such an economically-directed shuffle should *add considerably to the capacity of existing transportation equipment.*

There would be a decline in empty freight car-miles being paralleled by long-haul trucks; there would be a similar reduction in lightly-loaded freight cars and lightly-loaded or empty trucks paralleling each other on short hauls. The shuffle would release both freight cars and trucks for service which probably will be badly needed before the present crisis is past. Thus, action in this direction is called for in the interest of national safety; and, hence, would have to be seriously considered even if it would injure the carriers instead of helping them. It is just plain luck that long-run carrier well-being, and transportation efficiency in the present crisis, both call for identical, rather than contradictory, action; and that such action would now impose no serious immediate revenue problems to either form of transportation.

The shippers are being asked, quite properly, to load and unload cars more quickly and load them more heavily. It would undoubtedly stimulate them to greater efforts, if they had the example before them of a transportation industry also cooperating without reservation to increase the efficiency of truck and car utilization, by each agency concentrating its efforts entirely on that part of the traffic to which it is best suited.

the Mikado that they don't need to maintain fifth columnists in this country to sabotage our war effort, because our own politicians will sabotage it more effectively than any likely number of fifth columnists possibly could.

Safety—For Its Own Sake and the Nation's

In his report to the Interstate Commerce Commission which was reviewed in last week's issue, John M. Hall, director, Bureau of Locomotive Inspection, commented much more at length on the general aspects of accident prevention and locomotive conditions than has been his wont in recent years. Two aspects of his comment are worthy of emphasis. At one point he said that "we sometimes find reports on the defect that caused the accident repeated many times until failure eventually occurred, together with signatures on the reports indicating that the reported work had been done, or attempted, each time a report was made. This is proof that the safe repairs required to secure dependable operation of the locomotive had not been made and that labor and time had been wasted."

This comment applies particularly to accidents caused by crown-sheet failures where contributory causes are found. It calls attention to one form of carelessness—one might say callousness—which is reflected in the reports of numerous boiler-explosion investigations. Even though the number of accidents caused by these failures is small as compared with the total number of accidents caused by failures of locomotives and their appurtenances, unusual care must be exercised to keep engine-terminal forces completely sensitive to the terrible consequences almost sure to follow such a failure. It is only fair to say, however, that of the eleven cases of crown-sheet failures reported during the fiscal year contributory causes or defects were found in only four cases and that a roughly similar relationship has existed for some years past. It would thus seem that there is far greater carelessness on the part of the men whose own lives are at stake. The crown-sheet failures which caused the death of six out of eleven and the injury of twenty-seven out of twenty-nine were without known contributory causes.

Carelessness is a difficult thing to overcome. Certainly, in the matter of checking the level of the water in the boiler, the utmost pains should be taken to develop habits of procedure which guard against misinterpretations of the reading of the water glass and the utmost care should be taken in its location and lighting so that its indications may be clearly evident at a glance.

While Mr. Hall speaks for the promotion of the safety of employees and railway travelers, his comments are of even broader significance. There is every reason to expect that, before the year is over, the railroads of the United States will be called upon to move a volume of traffic which will tax the capacity of the available supply of motive power and that a supply of materials adequate to maintain this motive power in serviceable condition may not always be easy to obtain.

When he says, therefore, that "the practice, still too often indulged in, of applying temporary repairs in the hope that the locomotive will make a successful trip and that more adequate repairs may be applied thereafter when the time is more convenient, has been productive of many failures on the line of road; these failures, in addition to increasing the peril to life and limb of employees and others and increasing the ultimate cost of repairs, result in delay to the train involved and frequently affect the orderly movement of other trains," the railways can afford to heed his warning as much in the interests of conservation of much needed railway capacity and of scarce materials of maintenance as in the interests of safety itself. This is a corollary of the proposition that "a safe job of railroading is a good job of railroading."

Financial Commentator Urges Industry to Intensify Public Relations Work

"It is becoming increasingly evident that industry is failing once more to keep the public fully informed as to what it is doing in the war effort. This apparently is due partly to the fact that it has not yet learned how this very important phase of its operations should be handled and partly because it has been so busily engaged with its work and keeping things straight with the various federal departments that it has had time to give but little attention to public relations.

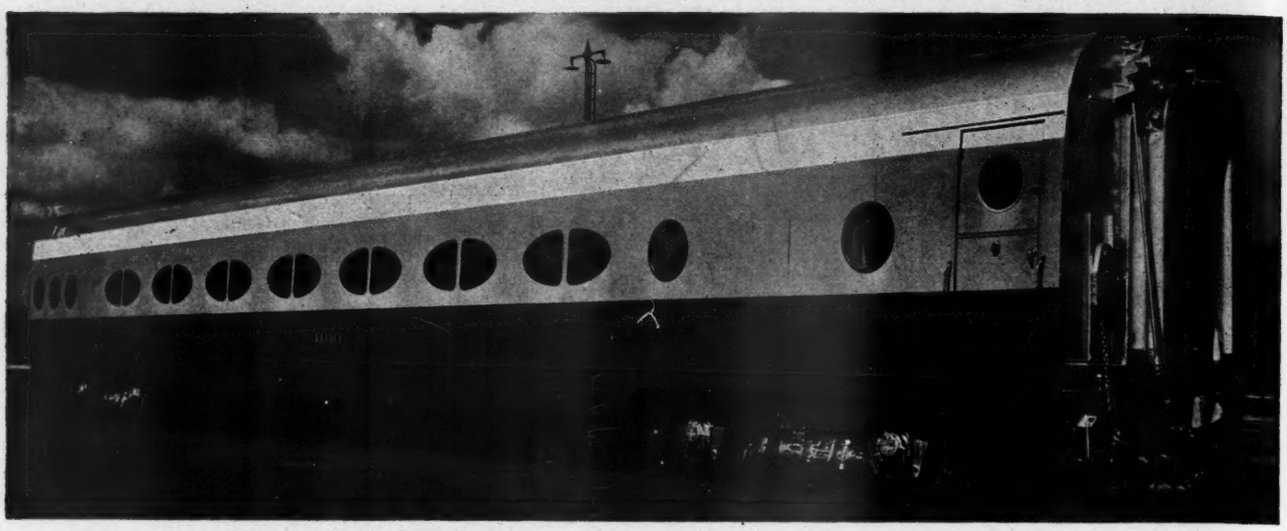
"Although industry and government are co-operating wholeheartedly in attempting to push the production of war materials, both are highly suspicious of each other, according to all indications. Many federal officials are determined, so it would seem, to carry out further reforms and expand governmental control over business. Industrial leaders are doing everything within their power to prevent the carrying out of these plans.

"But the federal authorities seem definitely to have the inside track. They have learned the value of public relations work, having hired hundreds of trained men to see to it that the public not only learns of everything they want it to know but gets its facts from the most favorable angles. No stone is left unturned to keep pulling the public into their camp. . . .

"But it would be indeed unfortunate if it were to see only one side of the tremendously important picture that is being shown on the screen of world events today. It might very well decide at some later date that industry had failed to serve the nation well in this emergency and insist that control pass into the hands of others deemed more patriotic.

"Impressions are bound to be formed as the reel unwinds, and it is the accumulation of these impressions that will go to make up public opinion."

—Ralph Hendershot in the New York World-Telegram



One of the Hill Pendulum-Type Cars Built for the Atchison, Topeka & Santa Fe

Pendulum Cars for the Santa Fe, Great Northern and Burlington

Welded all-steel coaches embody stressed-skin construction and are spring supported above the center of gravity on trucks of unique design

THE pendulum-type passenger car, being developed by the Pacific Railway Equipment Company, Los Angeles, Cal., and first described in the *Railway Age* of February 12, 1938, has been further improved and three new cars constructed and recently delivered, one to the Atchison, Topeka & Santa Fe, one to the Great Northern and one to the Chicago, Burlington & Quincy. These cars are all de luxe chair cars, or coaches, practically identical in size and structural design, the only difference being in interior arrangement. The Santa Fe car, with 9 ft. 9 in. in one end devoted to men's rooms and a total of 11 ft. in the other end utilized for women's lounge and wash rooms, has a seating capacity in the coach section of 56. The Burlington car, with slightly less lounge space, seats 60. The Great Northern, with a single 6-ft. 1-in. wash room for men and another for women in one end of the car, has a seating capacity of 68. A 3-ft. 8-in. space on either side of the center aisle above the truck support springs is devoted to locker space in each car. The coupled car length is 85 ft. and lightweight 109,000 lb.

Advantages of Above-Gravity Suspension

The object of developing the pendulum-type car has been to produce a car-body suspension system which will give the requisite insulation against vibration and maintain stability, these goals being achieved in conjuncton with maximum comfort at high speed on ordinary track with safety and economy of weight. In taking curves above superelevation speeds, the outward force acting on the center of gravity causes the car body to move pendulum-wise, adding effectively to the superelevation of the track insofar as comfort and stability within the car are concerned. The actual support at each end of the car is at two points on either side of the center line, a third attachment between the truck and the car body below the floor level serving to position the truck longitudinally with respect to the car body. No objectionable interference with normal use of the car interior is introduced by this method of suspension. The desired motions are provided by flexure of the support system, suitably positioned and restrained. In the present form, all motions between the truck and car body occur solely through elastic flexure, leading to a simple lightweight truck and suspension system.

The car body rests on soft-action coil springs which are recessed into the car structure on either side of the center aisle. These springs carry only vertical load and allow within limits of safe stress sufficient horizontal movement of the top relative to the bottom for all lateral and turning movements of the truck in normal service. Lateral movement of the car body floating on the main springs is restrained by control arms and links which act on the body above the center of gravity. The control arms are flat-leaf steel springs with progressive stops which give a variable spring rate for lateral motion so that the car floats about a center position with small restraint, equivalent to the action of very long swing hangers and is brought to a yielding stop for large lateral swings.

The longitudinal position of the truck is maintained by the thrust tube or "wagon tongue" which is anchored in rubber near the center of the truck frame and at the

Pendulum Car Built for the Great Northern by the Pacific Railway Equipment Company

other to the car underframe. The rubber mountings of the longitudinal tie permit lateral movement and angular movement of the truck on curves, and constitute barriers against noise transmission. The coil-spring suspension involves no sliding or rotating parts carrying the weight of the car. The elements which have been described replace the center plate, side bearings, bolster, chafing plates, bolster springs, spring plank and swing hangers used in all standard passenger-car trucks.

The successful performance of the experimental trucks indicated that the journal springs should be relatively stiff. The journal coil springs are mounted just above the boxes, and are applied so that some lateral movement can take place between the journal boxes and the truck frame. This movement is permitted by rubber and steel vulcanized pads on the side of the pedestals which are deflected in compression to relieve lateral shocks. The arrangement of parts is different from that used on the experimental cars but the characteristics are the same. The truck frames are arc-welded of high-tensile, low-alloy steel and are stress-relieved before machining.

Coil Springs with 10-In. Deflection Cushion Road Shocks

Eight body springs are used per truck, four on each side. These springs are mounted just above the frame side members and extend upward 26 in. within the body to the body-support structure. The static deflection of 10 in. together with the rubber insulator at the top of the springs with a deflection of ⅜ in. is said to insulate the car body thoroughly from disturbances in the truck.

The lateral springs consist of two plates clamped rigidly to the side of the truck frame extending between the body-support bulkheads to a point above the center of gravity of the body. Rubber-cushioned progressive lateral stops shorten the effective spring length with increased deflection, and thereby increase the spring rate with deflection. Lateral tie rods with rubber-mounted end connections attach the lateral spring to the car body at a point about 20 in. above the center of gravity of the entire body assembly.

Hydraulic shock absorbers, mounted on the side of the truck frame, are connected by means of long vertical tie rods to the body structure. These two vertical tie rods, also used to hold the truck to the car body in case of derailment or overturning, are designed to meet the Association of American Railroad's strength requirement.

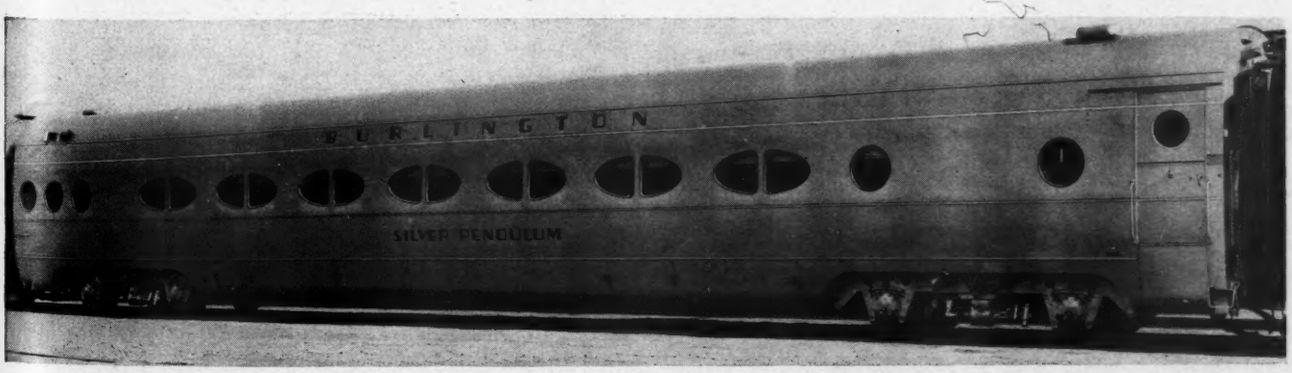
Principal Dimensions, Weights, and Seating Capacities of New Pendulum Car

Salable seats:	
Santa Fe	56
Great Northern	68
Burlington	60
Coupled length, ft.-in.	85-0
Length over body end posts, ft-in.	82-8
Length between truck centers, ft.-in.	60-0
Overall width, ft.-in.	10-0
Inside width, passenger compartment, ft.-in.	9-5
Overall height, ft.-in.	13-5
Inside height, passenger compartment, ft.-in.	8-¼
Height of body suspension above rail, ft.-in.	7-3
Height of center of gravity above rail, ft.-in.	6-1
Truck wheelbase, ft.-in.	9-0
Lightweight of car, lb.	109,000
Weight of two trucks, lb.	31,000
Weight of body structure, lb.	32,000
Weight of equipment and furnishings, lb.	46,000

Hydraulic shock absorbers, mounted in the body-support structure, are connected by means of lateral links to the tops of the lateral spring housings.

The truck thrust tube, used to position the truck longitudinally with respect to the body, is connected to the truck through a large rubber fitting at the center of the transom. The body connection of the thrust tube is made through a similar fitting attaching to a bracket mounted directly under the draft-gear pocket. This thrust tube also is designed to meet requirements of the A. A. R. for crash conditions.

The truck wheels, axles and bearings conform to railroad standards for light modern equipment. Wheels are rolled steel, 36 in. in diameter, triple wear. Journal



A Hill Pendulum Car Recently Delivered to the Chicago, Burlington & Quincy

bearings, designed for 5½-in. by 10-in. journals, are of the Timken taper-roller type. Simplex unit-cylinder clasp-brake equipment, designed especially for use on this type of truck, is installed.

How the Steel Car Bodies Are Constructed

The essential structural elements of the steel stressed-skin construction embodied in the body of this car are: (1) thin skin or sheathing; (2) longitudinal stiffening members; (3) transverse stiffening carlines at the roof; side posts at the sides; and floor beams, or cross-bearers on the underframe; (4) structural bulkheads through

Interior of the Santa Fe Coach

which vertical and lateral loads are transferred to and from the body structure; and (5) miscellaneous structures, such as heavy end frames, essential for housing draft and buff gear; center sill, essential for heavy buff and draft loads; and the body spring-supporting elements.

Both the longitudinal and the transverse stiffening members are light in weight. They are rigidly fastened to, and act integrally with, the skin. The longitudinally corrugated flooring is a pressed sheet with closely spaced stiffeners. All of these elements are inter-connected to form an integrated continuous unit.

Some of the important advantages of the stressed-skin steel construction used in this new car are summarized as follows: The flooring is shear-connected into the structure, making the car body a huge tube, closed at both ends, with a high degree of torsional rigidity. The bending rigidity of the structure is likewise high since all the effective material is disposed as far from the neutral axis as possible. Consequently, under normal operating loads, the maximum stresses in the structure are low. Elliptical windows are used to reduce stress concentrations and to increase the shear rigidity of the body.

The use of closely spaced longitudinal stiffeners around the entire periphery of the structure, to reduce buckling and increase the total effective width of the sheathing, results in increased collision protection of the passengers, both for end and side loads. The side collision strength is further improved not only by the close spacing of side posts and carlines, but also by the fact that the floor beams, side posts, and carlines are alined and spliced together to form a series of continuous frames, or rings, throughout the length of the car.

End-collision strength is improved by the large number of longitudinal stiffeners around the entire periphery, as well as by the fact that the corrugated flooring is arranged to have its corrugations parallel to the longitudinal axis of the car. The flooring also has a rigid shear connection to the center sill, so that loads applied to the center sill are distributed to the flooring, and, thence, to the rest of the car structure.

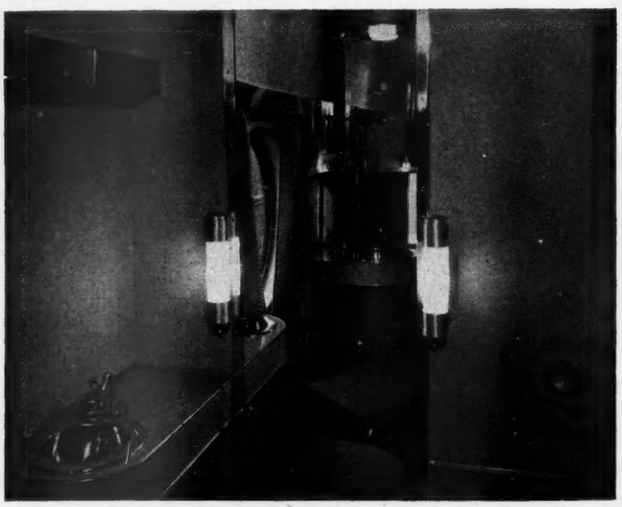
The entire car body structure, with the exception of the arc-welded end framing, draft-gear attachments and miscellaneous connections, is fabricated with controlled spot welding.

Other Features—Lighting and Air-Conditioning

The car floors are insulated with a combination of cork, Fiberglas and Airacoustic sound insulation. In the region of the trucks, where sound intensity is high, the exposed surfaces are made sound absorbent to reduce the sound level. The walls and roof are insulated with Fiberglas and Dednox.

The cars have attractive interior appointments and color schemes. They accommodate 56 to 68 passengers in rubber-cushioned, individually controlled reclining seats. The seat spacing is 44 in., or about 2½ in. longer than commonly used in modern chair cars, giving that much additional leg room.

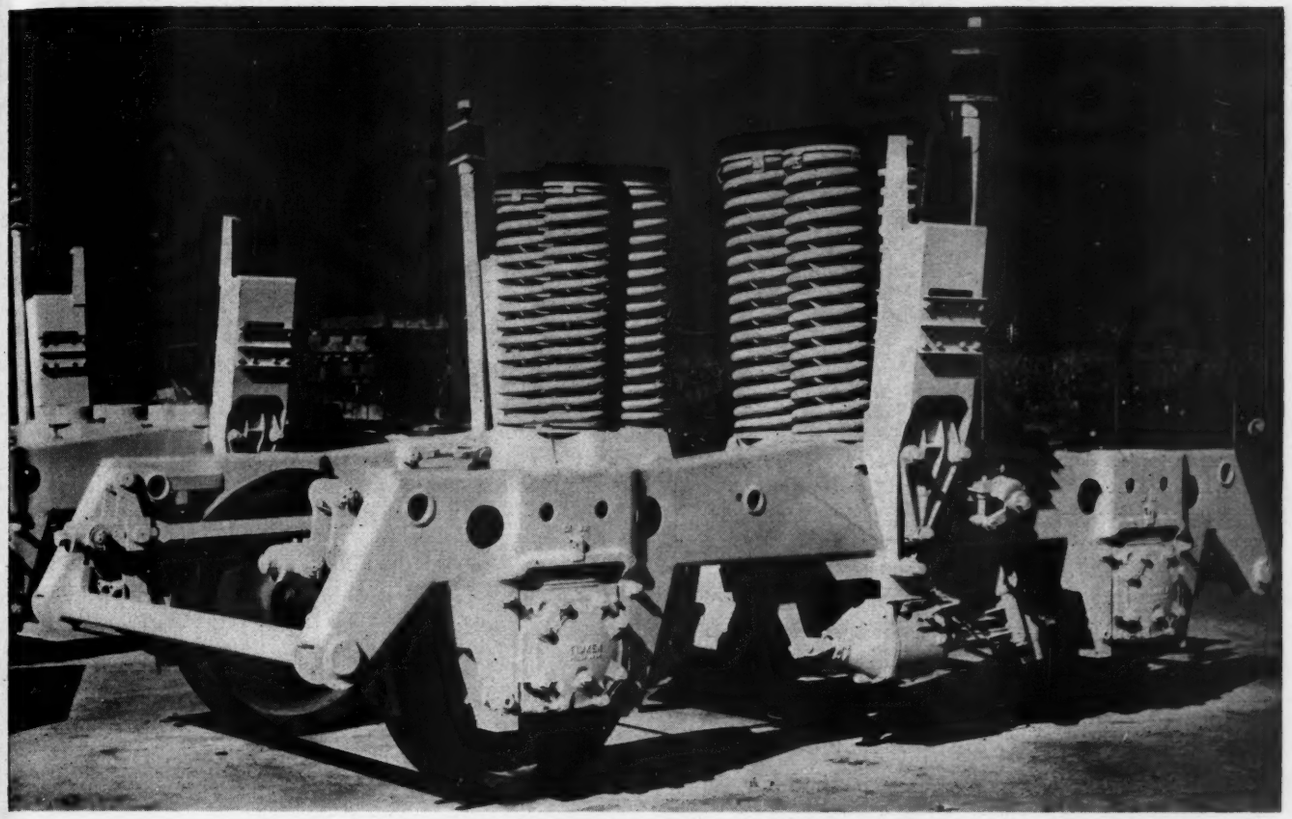
The main passenger compartment in each car is illuminated by fluorescent lamps arranged in a continuous fixture located on each side of the aisle under the nose



In One of the Women's Dressing Rooms

of the baggage racks. Individual light switches are installed at each seat adjacent to the light fixture. Two incandescent lamps, one white for general illumination and one blue for night lighting, are located in each of the five combination air-outlet and lighting fixtures in the ceiling. Incandescent lamps are used in the vestibule, dressing rooms, toilets and end aisles.

Electric power on the Santa Fe car is obtained from a Safety 10-kw. generator; body mounted on rubber insulators and driven by a flat belt from the truck axle. The Burlington car has a G. E. 20-kw. generator, driven by a Safety V-belt and gear drive mounted on the truck frame. The generator is mounted longitudinally under the center sill in resilient mountings. The Great Northern car is similarly equipped with the exception of the generator which is a Safety 20-kw. type. A Safety motor alterna-

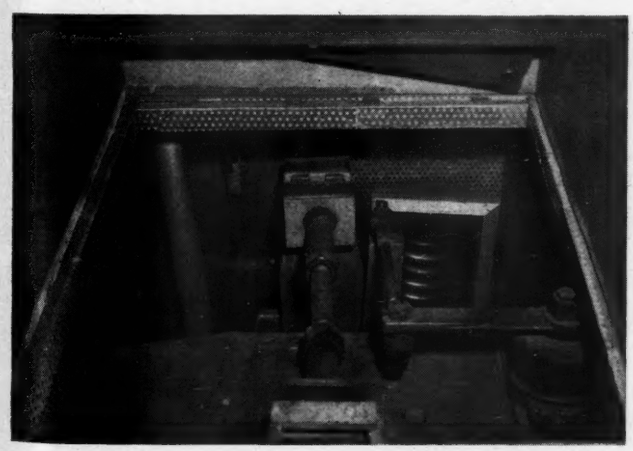


Pendulum Car Truck Fabricated by Welding and Designed to Support the Car Body 14 In. above the Center of Gravity

tor, suspended beneath each car supplies 110-volt, a. c. current to the fluorescent lamps, razor and curling-iron outlets.

Exide batteries are used in all three cars. D. c. charging receptacles are installed at each side of the cars and a. c. standby receptacles are available on the Burlington and Great Northern cars to permit operation of the air-conditioning equipment at stations and terminals.

Each of the three cars is air-conditioned with equipment to conform to that in general use on the owning road. The Santa Fe car has a Safety 6-ton steam-ejector type air-cooling unit. The Burlington car is equipped with a Trane evaporative-condenser air-conditioning unit. A Frigidaire 8-ton air-conditioning unit is used on the Great Northern car. All three cars have overhead air distribution through Anemostats. Both floor and overhead heating is installed, with full thermostatic control.



The Upper End of the Lateral Swing Controls over One of the Trucks—A Body Support Spring Is Reflected in Mirror at Right

Pendulum Cars Demonstrate Easy-Riding Qualities

Demonstration runs indicate that the new pendulum cars are unusually quiet and that the riding qualities represent a distinct improvement over existing modern

Partial List of Materials and Equipment Used on the Santa Fe, Great Northern, and Burlington Pendulum Cars

Steel for car bodies:	
Stainless	Columbia Steel Co., Los Angeles, Calif.
High-tensile, low alloy	Youngstown Sheet & Tube Co., Youngstown, Ohio.
Car bodies	Consolidated Steel Corp., Ltd., Los Angeles, Calif.
Car-body ribs and stiffeners	Van Huffel Tube Corporation, Warren, Ohio.
Car-body springs	American Locomotive Co., Railway Steel Spring Div., New York.
Center sills (stainless steel)	Edward G. Budd Manufacturing Company, Philadelphia, Pa.
Truck frames (SF-GN)	Lukenweld, Inc., Coatesville, Pa.
(CB&Q)	Consolidated Steel Corp., Ltd., Los Angeles, Calif.
Truck molded rubber parts	Gates Rubber Company, Denver, Colo.
Shock absorbers	Houde Engineering Corp., Buffalo, N. Y.
Truck castings	Warman Steel Casting Co., Huntington Park, Calif.
Nuts	Grip Nut Company, Chicago.
	Elastic Stop Nut Corp., Union, N. J.
Wheels and axles (GN-CB&Q)	Bethlehem Steel Co., Los Angeles, Calif.
(SF)	Standard Steel Works Division of The Baldwin Locomotive Works, Philadelphia, Pa.
Roller bearings and journal boxes	The Timken Roller Bearing Co., Canton, Ohio.
Journal-box oil gages (SF)	The Ohio Injector Co., Chicago.
Couplers and yokes (GN)	Buckeye Steel Castings Company, St. Paul, Minn.
(SF-CB&Q)	National Malleable & Steel Castings Co., Cleveland, Ohio.
Draft gear and buffers	W. H. Miner, Inc., Chicago.
Air-brake equipment (GN)	New York Air Brake Co., New York.
(SF-CB&Q)	Westinghouse Air Brake Co., Chicago.
Hand brakes	National Brake Company, New York.
Brake shoes	American Brake Shoe & Foundry Co., San Francisco, Calif.
Clasp brakes, journal and lateral control springs	American Steel Foundries, Chicago.

Lateral control springs	Standard Steel Spring Company, Coraopolis, Pa.
Insulation:	
Car body .....(SF)	Gustin-Bacon Mfg. Co., Kansas City, Mo.
(GN-CB&Q)	Johns-Manville Sales Corp., San Francisco, Calif.
Dednox	Dednox, Inc., Chicago.
Airacoustic sound	Johns-Manville Sales Corp., San Francisco, Calif.
Pipe—Steam line, hot- and cold-water lines	Johns-Manville Sales Corp., San Francisco, Calif.
Water-line	Union Asbestos & Rubber Co., Cicero, Ill.
Insulation tape, cork board slabs for insulation	Armstrong Cork Company, Los Angeles, Calif.
Folding trap steps and window sashes	O. M. Edwards, Inc., Syracuse, N. Y.
Air-conditioning equipment (CB&Q)	The Trane Co., Chicago.
(SF)	Safety Car Heating & Lighting Co., Inc., New York.
(GN)	Frigidaire Div., General Motors Corp., Dayton, Ohio.
Generators .....(SF-GN)	Safety Car Heating & Lighting Co., Inc., New York.
(CB&Q)	General Electric Company, Los Angeles, Calif.
Generator mounting supports	United States Rubber Co., Los Angeles, Calif.
Generator V-belt and gear drive .....(GN-CB&Q)	Safety Car Heating & Lighting Co., Inc., New York.
Anemostats	Anemostat Corporation of America, New York.
Air filters	American Air Filter Co., Inc., Louisville, Ky.
Air grilles for doors	Barber Colman Co., Los Angeles, Calif.
Heating equipment	Vapor Car Heating Co., Inc., Chicago.
Storage batteries	Electric Storage Battery Co., Philadelphia, Pa.
Battery receptacles	The Pyle-National Company, Chicago.
Switchboards, lavatory and vestibule lighting fixtures..	Safety Car Heating & Lighting Co., Inc., New York.
Fluorescent bag-rack lighting fixtures, lavatory signs ...	C. W. Cole Company, Los Angeles, Calif.
Electrical receptacles	Cutler-Hammer, Inc., Los Angeles, Calif.
Electric cable	The Okonite Company, San Francisco, Calif.
Fuse receptacles and electrical train connections	Loeffelholz Company, Milwaukee, Wis.
Vibrator converters	Central Engineering Laboratories, Chicago.
Plywood for floors	Western Hardwood Lumber Co., Los Angeles, Calif.
Fibre wood for wall backing; Plymetl bulk-head panels..	Haskelite Mfg. Corp., Chicago.
Armorply partition panels ..	United States Plywood Corp., Los Angeles, Calif.
Stainless-steel moldings	R. D. Werner Co., New York.
Aluminum extrusion and sheet for ceiling panels	Aluminum Co. of America, Los Angeles, Calif.
Vestibule and end doors	The Morton Mfg. Co., Chicago.
Door closers	P. & F. Corbin, New Britain, Conn.
Door hardware and hooks ...	H. S. Getty & Company, Philadelphia, Pa.
Door hardware	The Stanley Works, New Britain, Conn.
Door hinges	Loeffelholz Company, Milwaukee, Wis.
Door locks	Dayton Mfg. Co., Dayton, Ohio.
Door latches and holders; window curtains; ash receptacles; diaphragms	The Adams & Westlake Co., Elkhart, Ind.
Car seats	Transportation Seat Co., Mansfield, Ohio.
Upholstery	L. C. Chase & Co., Inc., New York.
Hoppers and lavatory plumbing fixtures	Dayton Mfg. Co., Dayton, Ohio.
Lavatory traps and piping; steam-heat, air and water piping	Crane Co., Los Angeles, Calif.
Electric water coolers	Tested Appliance Company, Chicago.
Paper-cup dispensers	Dixie-Vortex Co., Chicago.
Welding rod	The Lincoln Electric Co., Cleveland, Ohio.
Wrecking tools	Crear, Adams & Co., Chicago.
Fire extinguishers	Pyrene Mfg. Co., Newark, N. J.

NOTE:
SF—Atchison, Topeka & Santa Fe.
GN—Great Northern.
CB&Q—Chicago, Burlington & Quincy.

equipment. Although this type of car rides well when coupled to standard cars, the best riding qualities and full action of the pendulum suspension can be experienced only when the car is coupled between other cars of similar design. Since the banking of the pendulum car is opposite in direction to the roll of a standard car there is more relative movement and greater forces acting at the diaphragm when the pendulum car is coupled to a standard car than when coupled between other pendulum cars. While these forces restrict the pendulum action and tend to introduce some shock and vibration into the car, the generally excellent riding qualities are apparent to passengers comparing this car with other cars, even when the car is coupled between standard cars.

Public Ownership of Rights-of-Way Is Urged

WASHINGTON, D. C.

GOVERNMENT ownership in the post-war period of "all rights-of-way" of transportation agencies is an "urgent need" if a "properly conceived modernization of the transport plant as a whole" is to be achieved, according to a discussion of "Transportation Problems and Future Development" embodied in a National Resources Planning Board report which President Roosevelt sent to Congress last week.

Presumably public ownership of terminal facilities is also contemplated, for the report says in another place that the objectives which it outlines "must be accomplished by the public planning of terminal and right-of-way facilities adequate to accommodate modern railroad, automotive and plane equipment." And while "the opportunities for investment in equipment programs are of minor importance compared with those which could reasonably be outlined for expansions and betterments to rights-of-way and terminals," the planners would not neglect the equipment situation. They suggest consideration of "the possibility that wholesale orders might be made by the government, during the war, for execution after the war." Direction of all this post-war transport program, as they see it, "is the logical responsibility of a Federal Transportation Authority which can serve to establish the broad outlines of a transportation objective for America." That authority, it is further suggested, might embody "a new railroad promotional agency," which (if it were decided not to use the Reconstruction Finance Corporation) might handle the aforementioned equipment program; while the states and local governments are expected to need the assistance of "a federal agency" in connection with the acquisition of land for "future transportation modernization."

The report, as the board's press release put it, outlines "the broad objectives of post-war planning for full employment, higher living standards and economic security"; and the transportation chapter was prepared "under the direction of Assistant Director Ralph J. Watkins by the staff and consultants of the transportation section." Aside from whatever implication there may be in this identification of the authorship of the transportation chapter, and of some of the other discussions, there is in the report no disclaimer saying specifically that such works of its staff had not been considered or approved by the board. Members of the board are Frederic A. Delano, chairman, Charles E. Merriam, and George F. Yantis. Also, there are two advisors—Henry Dennison and Beardsley Ruml. Charles W. Eliot is director.

The aforementioned call for public ownership of all rights-of-way came out of a feeling on the part of the planners that the ownership by the railroads, unlike other agencies, of their own rights-of-way comprises "one of the obstacles which now confronts the public works program for transport development." As a result, the report complains, "both the planning of an overall transportation system and the profitable investment of public capital are thwarted; and exclusion of the railroads from a large-scale public works program accentuates the problem of unequal promotional policies, hence an uneconomic distribution of traffic." Previously the report had outlined what its authors regarded as post-war "opportunities for worthwhile investment which the transport industries offer," and set forth its conclusions in part as follows:

"On the basis of these far-reaching technological possibilities and the vast expansion of current transportation requirements, it appears certain that we shall emerge from the war with a highly advanced conception of what constitutes modern transportation. At that time there will be a tremendous number of planes and a vast productive capacity to be converted to non-military uses. The development of plastics and other substitute materials, better fuels, new ship designs, improved transportation organization, and greater awareness of the unnecessary legal obstacles to efficient transportation service and the present shortcomings of the transportation plant will be among the factors which will contribute to a program of modernization. At the same time, idle men, materials, and machines will inevitably mark the transition from war to peace unless a positive plan of public action is in readiness to avert as far as possible the economic dislocations which would normally accompany such change.

"The setting, then, will be one in which the need for large-scale rebuilding of the transportation system will be simultaneous with the need for a vast program of public works and new capital investment. To overlook the possibilities of such a coincidence would mean a loss not only of labor resources and transportation achievements, but also of the hope that through a rapid changeover to productive new investment we shall be able to prevent the national income from catapulting to prewar levels.

"Although avoidance of this possibility depends upon such stimulation of the general economy as will sustain traffic, emphasis is placed upon investment opportunities in the transportation industries because of their role in facilitating the operation of the whole post-war program. A general reduction in transportation rates will encourage traffic and stimulate consumption, and new transportation developments will in turn permit the development of new resources and provide the necessary means to new planning ends. These objectives must be accomplished by the public planning of terminal and right-of-way facilities adequate to accommodate modern railroad, automotive and plane equipment; and such action must include the elimination of unnecessary duplicate services, wasteful practices, and a vigorous program of consolidation and coordination. For transportation modernization means not only the adoption of new techniques, but the elimination of obsolete practices.

"The need for new transportation equipment to serve post-war requirements will offer considerable opportunities for profitable investment. Railroad and motor vehicle equipment needs to be magnified beyond previous normal requirements as a result of deterioration resulting from increased utilization during the war and of restricted replacements due to a limited supply of materials.

In addition, the introduction of new types of equipment and the competitive pressures promoting their adoption will probably induce further investment.

"In order to serve a two-fold purpose, first of furnishing equipment adequate for post-war service; and secondly, of aiding in the provision of new capital investments necessary to maintain a high income level, transport equipment manufacturers now producing tanks, ordnance, etc., must resume their peacetime roles as rapidly as possible. Plans must be laid now for such conversion. In particular there must be assurance that orders of sufficient magnitude will be placed by the railroad industry for cars and locomotives to make these conversions worthwhile. This raises the possibility that wholesale orders might be made by the government, during the war, for execution after the war. This project might be handled through the R. F. C. or a new railroad promotional agency within a Federal Transportation Authority.

"The attitude of the railroads will, of course, depend largely upon their financial position. Present railroad opinion anticipates serious declines in freight and passenger traffic, more severe competition, and inflated wage and cost structures. The carriers will be prepared, therefore, to curtail purchases sharply once the war is terminated. Although financing could undoubtedly be worked out through the R. F. C., it would be difficult to induce the railroads to lease or purchase equipment unless there is reasonable assurance of a relatively high level of traffic. If the expected post-war decline could be prevented or cut short, the railroads might provide a market for as much as $500,000,000 worth of new rolling stock per annum. They will not, however, rush in to buy."

Then came references to possibilities for post-war investments in equipment of highway, air, and water carriers, followed by the above-mentioned appraisal of opportunities in the equipment field as being "of minor importance" compared to the possibilities for expenditures on rights-of-way and terminals. In the latter connection the report went on to say that "replacement of existing scattered and ill-co-ordinated facilities by modern unified terminals could profitably absorb substantial amount of capital, but financing would necessarily come from the government. Plans should be laid now for this type of operation." Next, after its call for the elimination of the "obstacle" of private ownership of railroad rights-of-way, and its suggestion that the state and local governments would need federal assistance in the financing of terminal construction work, the report led up to its Federal-Transportation-Authority recommendation as follows: "In conclusion, there is increasing evidence that the role of transportation in the post-war public works program requires the scrutiny of transportation projects in the light of rapid changes now taking place in transport technology; that a far-reaching plan for transportation development cannot be possible unless directed from an over-all understanding of what the future in transportation can and should be. Such a task is the logical responsibility of a Federal Transportation Authority which can serve to establish the broad outlines of a transportation objective for America."

The conclusions of the report, as outlined in the foregoing, were evolved from its more specific discussions of the various transport agencies. "The great size of the transportation and related industries and their importance to national development," the discussion said at the outset, "are sufficient to place them in the forefront of those activities meriting extended attention in the post-war era. . . . In the post-war period transportation may again hold its traditional place as a leader in reconstruction and adjustment. The great potentialities of air transport assure it a dominant role, but important work must be undertaken, too, in the highway, railway and waterway industries."

Continuing to speak of "numerous defects in the transportation plant and its operation," the report asserts that "failure to realize the improvement in transportation service made possible by modern technology is only too evident in the hazard, congestion, inconveniences and high costs which typify a large part of transport operations." The bill of particulars with respect to rail transport finds "vast opportunity for investment" in such things as grade revision, heavier rail, realinement of right-of-way, and modern signal installations "to permit faster and more efficient operation." Also, "modern

light-weight cars and improved locomotives are required. . . ." At the same time, "the competitive duplication of railroad facilities suggests the abandonment of unnecessary segments of main lines, and the retirement of many branch railroads is an urgent necessity where such lines are no longer justified by available traffic and public need."

And because "the principal challenge of post-war reconstruction must inevitably be the rebuilding of the American city," the planners regard "terminal unification" as the "most important" of all post-war transport problems. "The greatest opportunity for the railroads," they say, "lies in the success with which this problem is overcome. In fact the terminal area constitutes the greatest challenge in the whole field of transportation, including airports, docks, parking areas and truck loading facilities. So great is this problem, that upon plans made now for its bold solution depends not only the future development of transportation, but the future reconstruction of the cities themselves."

Meanwhile, it is conceded that the railroads have made some "important advances" which "hold out the possibility of continuing improvements in service and increased economy in operation." Mentioned first in the connection is the introduction of Diesel-electric motive power. But the report soon shifts to a complaint that "despite the increase in average car capacity in the last two decades, car performance has been discouraging." In other words, as the planners spell it out," the proportion of dead weight to revenue freight carried has increased substantially, partly as a result of declines in the average car load." However, the recent development of light-weight materials and "new methods of assembly point to the possibility of materially reducing the tare weight of cars of a given capacity"; and "expansion of productive capacity of these materials will cheapen them and promote their post-war use."

Halted by the depression, the report next says, were the "large economies which formerly resulted from heavy investments in grades reduction and improvements in alinement, intermediate yards and other facilities." Permanent declines in traffic, it is suggested, may render many such projects "uneconomical"; but "important opportunities are, however, available for the fuller utilization of existing low-grade lines on a cooperative basis," although "widespread improvement in that connection must apparently await the accomplishment of consolidation on a broad scale." In the latter connection, the report later says that "extensive consolidation along the most efficient lines probably will not be effected except as a result of government participation in the planning and execution of the adjustment; and accomplishment of this objective will require detailed consideration now to determine the course of future action." While the report shies away from specific estimates, it says in another place that "there can be no question of the great magnitude of savings" involved in "extensive co-ordination and consolidation."

Meanwhile, reference had been made to new operating methods which have brought the extension of locomotive runs with the abandonment of intermediate yards and engine terminals. This is expected to simplify the problem of "modernizing" such of those facilities as remain; while "large economies are also available from the introduction of new machinery at the larger repair points." In the maintenance of way field, the report says that "commendable progress" has been made in recent years. In that connection it lists the development of the welded rail as "the most significant recent advance in permanent way," and then goes on to say that the railroads "have been slow" to adopt it.

With respect to other agencies of transportation, the report complains that the present highway system was neither originally laid out nor designed "for modern traffic density and speed." Air transport is said to present "many of the same type of problems" in that airports "must be enlarged and modernized" and given "improved access to urban centers." As to waterway transport, the planners think the post-war program must contemplate modernized port facilities to serve a merchant marine "of unprecedented size."

The potential developments in freight haulage by truck are viewed as "considerable." Diesel engines are expected to bring operating economies while the use of light-weight materials reduces tare weight. And "interchangeable equipment will furnish further opportunities for co-ordination with rail and water transport." Meanwhile, "public policy with respect to regulation of sizes and weights of motor vehicles may be expected to trend toward further relaxation and greater uniformity insofar as highway design and traffic conditions will permit." Bus transportation, the planners predict "promises to become an increasing factor in both short and long-haul transportation." They say that "the combination of reduced operating and maintenance expenses and better utilization of bus equipment will result in further reduction in bus fares"; while "the use of Diesel fuel or high octane gasoline offers further potential economies." But all of this contemplates that "highway facilities cannot continue to lag behind developments in the vehicle to the extent that they have in the past."

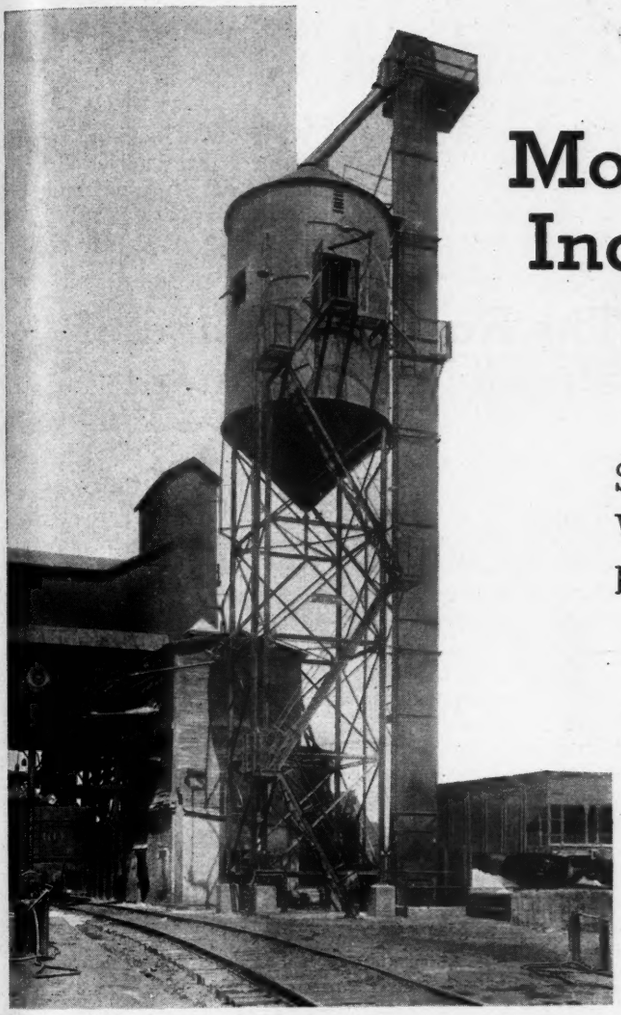
Viewing the future of air transportation, the report asserts that "unquestionably first class passenger traffic will continue to shift from rail to air at a rapid rate as passenger fare adjustments, and safety and convenience factors place the new agency on a more favorable comparative basis." Moreover, "the time is not far distant when first class mail will move exclusively by air whenever time is saved"; and "substantial expansion of the air express business may be expected," for the cost of handling it "can be reduced to a level substantially equivalent to present rail express rates if volume and regularity of movement are obtained." Looking into air transport's "more distant future," the planners suggest that "a large movement of freight by air may be anticipated as costs are reduced and volume grows."

In transmitting to Congress the report which embodied the foregoing transport discussions, President Roosevelt said that in preparing the document, entitled "Development of National Resources Report for 1942," the Resources Board was "continuing the series begun last year and establishing the custom of an annual planning report as a companion document to the Budget of the United States." "The National Resources Planning Board, as the planning arm of my Executive Office," the President went on, "is charged with the preparation of long-range plans for the development of our national resources and the stabilization of employment. At my direction it is correlating plans and programs under consideration in many federal, state and private organizations for post-war full employment, security, and building America. In this report the Board outlines some of our major objectives in planning to win the peace."

Meanwhile, as noted in the *Railway Age* of January 17, page 231, the Planning Board has virtually completed the transport study which was made for it under the direction of a committee headed by Owen D. Young, former chairman of the General Electric Company. The press release accompanying the present report said that this forthcoming transport study will provide "a basis for further post-war transportation plans."

Modern Sand Plant Incorporates Many New Features

Self-contained facility on the Western Maryland is characterized by largely automatic control and mechanical operation



The Western Maryland's New Sand Plant at Hagerstown Is a Compact, Self-Contained Unit

A MODERN, completely self-contained sand-drying and storage plant which incorporates a number of features of unusual interest, has been built by the Western Maryland at its engine terminal at Hagerstown, Md. A feature of the new facility is that it contains means for handling the sand mechanically, or by gravity, in all the steps involved, thereby precluding the necessity of shoveling it by hand. Because of this feature, and the further fact that the plant is largely automatic in operation, it is effecting substantial savings in the cost of handling sand at Hagerstown. In fact, the results obtained with the new unit have proved so satisfactory that a second plant, identical in all respects to the first, has been built at Maryland Junction, a point near Cumberland, Md.

General Features

Briefly, the new plant embodies a track hopper for receiving wet sand from hopper cars, a horizontal conveyor for delivering the sand from the hopper to the foot of a vertical elevator, and an overhead steel sand house. The latter contains a wet-sand storage bin with a capacity of 50 tons, from which the sand flows by gravity through two steam sand dryers and thence through a vibrating screen into the dry-sand storage bin, also having a capacity of 50 tons. From the latter bin, the sand is discharged by gravity either direct to locomotives through a sand spout or to a box car for delivery to other points on the Hagerstown division.

The sand house, which is of all-steel construction, is cylindrical in shape, with conical bottom and top, and is 17 ft. in diameter. It is supported on a four-legged structural steel frame which also carries a stairway that gives access to a doorway in the side of the tank and to the top of the sand elevator. The facility is of fireproof construction throughout.

The track hopper into which the wet sand is dumped from cars is 12 ft. long and is of reinforced concrete construction. Beneath the hopper is the horizontal conveyor which, together with the lower end of the elevator, is located in a concrete-lined pit. The conveyor, which is motor-operated, is of the continuous type with a heavy belt, and is about nine ft. long. The elevator to which the sand is delivered by the horizontal conveyor is contained for its entire height in an enclosed shaft, 16 in. by 54 in. in cross section, and consists of malleable iron buckets fastened 18 in. apart on a continuous special single-strand sand-handling chain.

Details of Elevator

This elevator, which has a capacity of 40 tons per hour, is driven by a fully-enclosed 10-hp. Westinghouse squirrel-cage fan-cooled motor, which is located on a platform at the upper end of the elevator. The motor has a De-Ion watertight starter with automatic cut-out through a fully-enclosed gear reducer, with gears operating in oil. Operation of the elevator is governed by push-button controls at both the ground level and at the top of the plant.

At the upper end of the elevator the buckets empty their contents into a pipe chute, 18 in. in diameter, through which the sand is delivered to the wet-sand storage bin in the top of the sand house. In this storage space there is a bin-capacity Mercoid switch which acts automatically to stop the elevator and the hopper feeder when the bin has been filled to capacity. When a given amount of sand has been withdrawn, the elevator can

again be placed in operation by means of the starter button. On the under side of the wet-sand storage bin are two lever-operated bin gates of the ratchet type. Controlled by these gates, the wet sand flows by gravity to two steam sand dryers of the Ross and White type. Together, these dryers, which operate automatically, are capable of drying 24 to 30 tons of sand every 24 hr.

Looking Down Into the Pit Beneath the Track Hopper, Showing the Horizontal Conveyor for Delivering Sand to the Elevator

For the use of the attendant, there is a steel floor inside the sand house at the level of the dryers.

As the sand escapes from the dryers, it passes by gravity into a steel collecting hopper situated directly above the dry-sand storage bin. This hopper has a cone-shaped floor with a three-inch opening in the vertex. As the sand passes through this opening on its way into the dry-sand storage bin, it falls on a small, electrically-operated vibrating screen which removes all foreign matter, such as pebbles, pieces of coal and chips. This latter material is discharged into a refuse chute which leads to a pipe that carries it to the ground level.

The bottom of the dry-sand storage bin, which is also the bottom of the sand house, is cone-shaped, with the sides inclined at an angle of 45 deg. Sand for delivery direct to locomotives is withdrawn from this bin at the vertex through a four-inch pipe that is inclined toward the engine track, and terminates in a moisture-proof under-cut sand valve with a telescoping counter-weighted spout.

Since this plant also supplies sand for use at other points on the Hagerstown division, it was necessary to provide means for delivering dry sand from the storage bin to the box cars in which it is shipped. For this purpose, a second outlet is provided in the bottom of the dry-sand storage bin, which is connected with a five-inch inclined discharge pipe, extending toward the hopper track. At the lower end of this pipe, there is a waterproof sand valve to which is attached a 3-in. rubber hose for delivering the sand to box cars spotted on the hopper track.

This new plant was installed under the general supervision of W. A. Blackwell, engineer maintenance of way of the Western Maryland. It was designed and built by the Ross and White Company, Chicago.

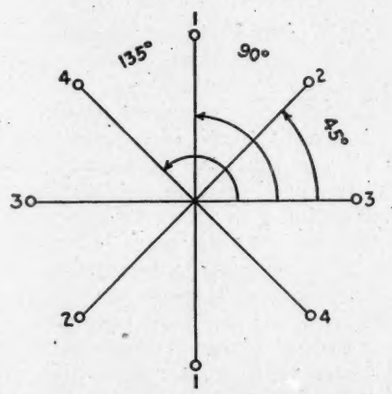
The Rosette Method of Stress Measurements

By Reid L. Kenyon and Harry Tobin*

IN many types of engineering structures, the working stresses can be computed with sufficient accuracy from the laws of mechanics and other theoretical considerations and a suitable design developed. There are some other cases, however, in which the stresses resulting from the applied loads cannot be computed, due to the complicated shape of the structure, and only direct measurements will give any idea of the magnitude of the working stresses.

For this reason alone, an accurate but simple method of measurement, in the field, of working stresses in engineering structures is greatly needed, but there are other reasons that make such a method even more essential in order to provide adequate safety of operation. This is particularly true in those fields where an effort is being made to reduce weight by utilizing not only higher strength materials, but by stressing them nearer their limit of strength, for in these cases an accurate value of working stresses is imperative, and even after careful design, the behavior of the finished structure should be checked by stress measurements in the field.

In some complicated structures, where welding or forming operations have been performed, or where cooling stresses have been introduced as in forging or in heat treatment, it is important to have a means of determining the presence and magnitude of *internal* stresses resulting from such treatments. These internal stresses are to be added algebraically to any working stresses, so it is possible that the combined effect might cause an unexpected failure.



The Rosette Consists of Four Intersecting Gage Lines

One of the essentials of a method of stress measurement is that it be theoretically sound and give correct values, and another requirement is that it be practical

(*Continued on page 264*)

* Mr. Kenyon is associate director and Mr. Tobin research engineer, Research Laboratories, American Rolling Mill Company.

The Historical Development of Military Railway Service*

How present set-up has evolved out of past wartime experiences of the United States and other countries

By Lieutenant Colonel Lewis T. Ross

Chief, Railway Section, Office of Chief of Engineers

RESPONSIBILITY of the Chief and Corps of Engineers for the operation, maintenance, and construction of railways within any theater of military operations is clearly laid down in Army Regulations. In peace, when no theater of operations exists, and in the Zone of the Interior, other officials also have certain responsibilities. For example, the Quartermaster General as Traffic Manager for the War Department, arranges for all movements by rail of troops and supplies. He does the same thing in war over our military railways. He also operates, maintains and constructs military railroads at posts and stations. The Corps of Engineers constructs and maintains railroads in connection with seacoast fortifications but these are turned over to the Coast Artillery for operation. The Ordnance Department designs carriages for railway artillery for use by the Coast Artillery. They can and do co-ordinate their work with the Corps of Engineers. In fact, there is the fullest cooperation between branches of the War Department on railway matters and no overlapping of authority.

The use of railways for military purposes is as old as the railroads themselves. In the first half of the nineteenth century, some portion of Europe was almost continuously at war. It was natural that the faster means of transportation, then developing, should be tried for the movement of troops and supplies. There were the usual ultra-conservatives, in and out of the military, who believed and proclaimed that railways would never be useful in military operations.

However, foreseeing authorities in Westphalia, Belgium, Saxony, France, and other countries were becoming aware of the importance of military rail transport. Railroads were constructed in some countries mainly for strategic reasons. Spasmodic effort were made in campaigns to take advantage of railroads. For example in 1846 the Prussians moved about 12,000 men and equipment to Cracow and in 1849 the Russians transported some 30,000 men and impedimenta from Poland to Moravia. In Italy, France and elsewhere, successful movements were made. But it was in our own Civil War that first co-ordinated use was made of military railroads and the military railway engineer came into his own.

Railroads in the Civil War

In 1861 railroads were comparatively new and their use in campaigns was not understood. Military commanders at first refused to shake themselves loose any great distances from their supply bases if they had to depend on railroads. Roads of the period, especially in many of the southern wildernesses, were inadequate and often impassable in wet weather. Mule or ox teams were slow and inadequate.

The railroads of the day were not too well equipped for military traffic. Gages varied from 6 feet to narrow gage. Ties were usually rough hewn or round logs. Rails were iron of various shapes and weights. The lines were vulnerable to interruption and destruction by raiding parties. No military operating, maintenance, or construction forces existed.

It was soon realized in Washington that railroads in a theater of operations must be under the absolute control of the military authorities. By the Act of January 31, 1862, Congress authorized the President, whenever in his judgment the public safety might require it, to take possession of and place under military control the country's telegraph lines and railroads. This law is interesting as the first authorization of conscription of personnel and property in the United States. The railroads, then as now, cooperated fully and patriotically. Their presidents met in Washington, submitted a fair tariff schedule to the government which was accepted and remained in effect throughout the Northern States until the end of the war. It was never necessary for the President to apply his conscription powers in this respect.

It was also realized that in occupied territory, it was necessary for a professional railroad man of ability and standing to take charge of railway operations. Accordingly, on February 11, 1862, the Secretary of War appointed Daniel Craig McCallum, general superintendent of the Erie, "Military Director and Superintendent of Railroads in the United States," with extraordinary powers. This later was changed to general manager of all railways in the possession of the Federal Government, and McCallum became a brigadier general.

This was the beginning of the Military Railway Service in the Army of the United States. McCallum organized it along lines quite similar to our present set-up. He was eminently successful, but he had his troubles. His running of trains was interfered with and his orders changed by local military commanders. Some thought they could get along without "mere railroad men." On one occasion, a train was held about two hours while a general's wife did her shopping. But confusion was ended by a strong order by the Secretary of War in November, 1862, requiring prompt unloading, protection, and most essential, non-interference with running of trains by anyone outside the Railway Service. The Railway Service came to appreciate better military requirements. Co-ordination was achieved. We try to follow these principles today.

The necessity for construction, reconstruction, and

* Abstract of an address delivered November 12, 1941, before the Pittsburgh (Pa.) Post, Society of American Military Engineers.

rehabilitation of southern railway lines soon became apparent. The wide variation in gage prevented interchange, necessary in a kinetic military situation. The condition of much of the roadbed, ties, and rail required considerable labor and extraordinary output of northern mills. Retiring troops destroyed lines; raiding parties became adept at destruction. In April, 1862, Herman Haupt, a well known railway and bridge engineer, at the request of the Secretary of War, had undertaken the restoration of destroyed lines, especially that toward Richmond. Haupt ran into difficulties. He had only those soldiers detailed daily by military commanders. He did not receive the pick of the forces. Accordingly, in May a "Construction Corps" was formed in Virginia with Haupt at the head, first as a colonel and later as a brigadier general. This plan worked. One of Haupt's conceptions, thought by many to be a recent development, was the storage of interchangeable truss parts, which could be transported to a site and erected by machinery "about as fast as a dog could trot."

Haupt also organized his forces quite similarly to present-day practice.

McCallum followed the same organization with marked success elsewhere in the southern states. The culmination was the rehabilitation of about 300 miles of railway in North Carolina and the construction of a wharf covering 54,000 square feet, to facilitate Sherman's northward progress after his march to the sea. During the entire Civil War, the Construction Corps laid 641 miles of track and built or rebuilt 26 miles of bridges. After the Civil War, the minuscule Regular Army retired to frontier posts, animal transport was used beyond commercial railroads. It is necessary again to look to Europe for military railway developments.

Railway Military Service Abroad

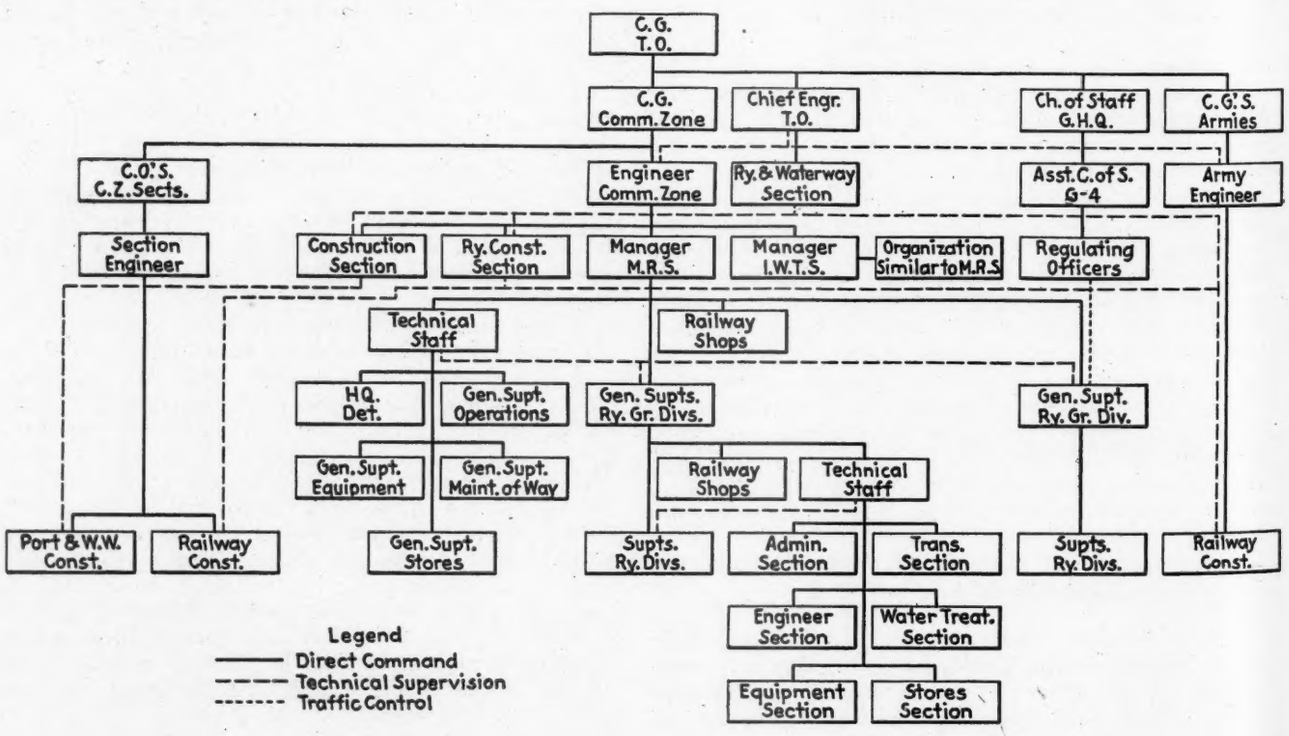
The Prussians were quick to absorb and apply the lessons of the American Civil War. McCallum's report was translated and studied. In the war with Austria, three divisions of a Construction (and Destruction) Corps were mobilized, and operated with marked success. The Austrians had paid lip service to the idea but had no such force. The Prussians found, however, that a permanent force was necessary, and this was being organized when the Franco-Prussian War started in 1870. Four sections, later increased to six, were available. On the French side, in spite of the warnings of Marshall Niel in 1869, no railway troops existed. A construction corps was hastily raised, but did little. However, the French engineers did some excellent work in the destruction of rail lines and the removal of rolling stock, calling forth yeoman's efforts on the part of Prussian corps.

It is to be noted that European developments up to this time included no railway *operating* force. After that war, however, the Germans proceeded vigorously to apply the lessons learned. A permanent railway construction and *operating* corps was organized, a training center established, and reservists trained. At the start of the World War, the German railway forces consisted of three railroad brigades, which was immediately expanded by the addition of some 75 companies and four labor battalions. The Germans also extensively used civilian contractors, under military control, for construction and rehabilitation.

At the end of the war, the railway force consisted of 442,000 officers and men. This was, of course, disbanded following the Versailles Treaty.

After the Boer War, the British also established a Railway Training Center, with a small regular cadre. Selected regulars and reserve units received periodic training. In the beginning of the World War the French handled railway matters for the B. E. F. However, the British gradually assumed this burden, and organized a Transportation Service, with British equipment, generally following the French system.

This French system was the result of intensive study, planning, and action by the French after the Franco-Prussian War. In general, the plan included a system of commissions, composed in each case of a military



Organization of Military Railways and Inland Waterways

member and a railroad member, and a force composed of what we know as "affiliated units"—reserve organizations formed by commercial railroads on their lines and composed of their personnel. The system was headed in the fourth section of the General Staff (supply). The commissions included a central "High Military Railroad Commission" and "system commissions" controlling military traffic on each one of the great French railroad companies, down to "Station commissions" consisting of an officer and a trainmaster. These functioned as railway executive bodies in the Zone of the Interior.

In the theater of operations, a "Director of Railroads for the Armies" functioned under the Commanding General, Communications Zone. His administrative bodies were similar to those of the Zone of the Interior with one important exception—the Regulating Station. The French considered this "the essential organism." The regulating officer absolutely controlled traffic into and out of the regulating station. We have followed this principle.

French railway troops consisted of "Railroad Sappers," construction units, 17 companies in peace, increased to 62 during the war, and augmented by labor companies and special units such as masonry and carpentry companies; and "Field Railroad Sections," comparable to regiments in size, operation and maintenance units, and mobilized as needed to work on their own lines in the theater of operations.

Transportation Service in World War

It was upon this system that we burst, in 1917, with plenty of enthusiasm, but with little knowledge and no planning. The trials, tribulations, and accomplishments of the Transportation Corps, A. E. F., are set forth by Colonel W. C. Wilgus, Deputy Director, in his "Transporting the A. E. F. in Western Europe."

In the United States, there were raised and sent to France, or there were organized in France, 20 operating regiments, 6 maintenance of way regiments, 8 car, and 12 locomotive shop regiments. The total strength on November 30, 1918, was 897 officers and 32,149 men. In addition, the Transportation Service at one time or another had control of over 20,000 stevedoring and inland waterway troops. Most of the railway personnel was drawn from the ranks of American railroads.

The Transportation Service was headed by Brig. Gen. W. W. Atterbury, of the Pennsylvania Railroad. He organized his service in accordance with American railroad experience with additions necessary for military operations. On November 12, 1918, his principal deputies were Colonel Wilgus and Brig. Gen. R. D. Walsh, Regular Army, whose appointment did much to create cooperation and understanding with the military authorities. Two other deputies headed departments controlling the "Zone of Advance," and the "Service of Supply."

The French criticized our system as cumbersome, ornate, and over-stuffed. I am personally of the opinion that much of this criticism was justified. The French criticized our lack of discipline. Certain it is that many of our train crews forcibly ejected French pilots assigned to them, and at the armistice deserted trains on sidings, main track, and in stations, to join in the general celebration. But to accede to such criticism is perhaps to criticize some of our national characteristics.

Military Railway Service Organized

The National Defense Act of 1916 and 1920 has been hailed as our first national military policy. We at long last had learned something. While the provisions of the Act were never fully carried out with regard to the Regular Army, the 1920's saw the development of our Officers' Reserve Corps, whose members form the bulk of the officer personnel of the Army of the United States under arms today. The Military Railway Service was organized by the Chief of Engineers. Studying the lessons of France, the railway operating battalion was taken as the basic unit. Thirty-two of these were formed on their lines by the trunk lines of the United States. One additional was authorized but never formed. Officers were commissioned from among appropriate officials of the sponsoring railroads. Nine "Regular Army Inactive" battalions were also formed, drawing their personnel from experienced railway reserve officers in the various corps areas. One railway shop battalion was formed by the Big Four at its shops at Beach Grove, near Indianapolis, Ind. A grand division was partially organized in the Eighth Corps Area. Colonel Carl R. Gray, Jr., operating vice-president, Chicago, St. Paul, Minneapolis & Omaha, was appointed Manager, M. R. S. In time of peace, we were at last in some measure preparing for war.

But with prosperity and depression, the nation's interest in its military forces waned. Appropriations decreased; the Army, scattered again became absorbed in holding together what it could. The railway units were of necessity largely left to their own devices. Some in remarkable fashion, continued at near full strength, kept up by the interest and energy of individuals. Others practically disintegrated.

With the imminence of war in Europe, the Chief of Engineers determined to re-vitalize the Military Railway Service. Colonel Charles D. Young, vice-president, Pennsylvania Railroad, was given the mobilization assignment of Chief, Railway Section, O. C. E. The Section was reestablished as a separate unit, and a war time set-up has been approved, based on the organization in the last war, and other advice and experience.

Besides the unhealthy condition of some of the units of the M. R. S., the service as a whole was not a balanced force. Colonel Gray's staff was almost non-existent. There were no grand divisions, intermediate headquarters necessary on wide-flung lateral or axial mobilization. There was only one shop battalion to do back-shop work for 42 divisions.

Studies indicated that 10 grand divisions and 6 shop battalions would be about the minimum required. It was impossible to secure the increase in size to take care of these additional units. Accordingly, it was necessary to discontinue in peace 22 of the operating battalions, and to organize Railway Headquarters, 5 grand division headquarters, and 2 additional shop battalions. Five grand divisions, three shop battalions, and the 22 discontinued operating battalions will be formed in war by the sponsoring railroads when and if needed. The geographical distribution is not ideal, but the units must be thickest where there are the most railroads. In general, the cooperation of the roads in accepting affiliation and in providing officer personnel, has been patriotic and wholehearted. But I should like to see more units in New England, the South, and the far West.

The organization of the M. R. S. is shown on the chart. Since military railways are an engineer supply organization, they function under the Commanding General, Communications Zone, through his Engineer. The departmental-division organization will be noted; transportation, stores, engineering, equipment and administration in headquarters, with the addition of water treatment in grand divisions. But the basic unit for transportation and maintenance remains the operating bat-

talion, on a small railway division of 75 to 100 miles. Greater latitude of responsibility and action must be allowed the commanding officer, as division superintendent, than is usual in commercial railway practice. A military situation is kinetic, constantly changing. Trains started from supply bases in the rear may or may not reach their destinations in the combat zone. A train load of one commodity has to be broken up and trains reassembled to reach the troops with all necessary articles of supply. So here we see again the key to the traffic control, the regulating officer. This officer functions directly under G. H. Q. He is assisted by a superintendent or general superintendent of the M. R. S. He controls the trains from the rear into his regulating station; makes up and dispatches trains toward the front; designates the railheads; and insures return of equipment and evacuation.

The Manager, Military Railway Service, has no *construction* troops under his direct control. New construction is carried out by Army and Communications Zone general engineer troops. I am alone among War Department officials in believing this to be a mistake. Railway Reserve officers also disagree with me. But this is not followed in the Army of any other major power. It is doubtful if trained railway construction troops will be available on call or that labor will be available in sufficient quantity. I personally see considerable advantage in forming a *nucleus,* say two general service regiments, specially trained in railway construction, under the responsible using agency, the M. R. S. To these can be attached additional construction troops as needed.

711th Railway Operating Battalion

That is the theory. It has seen little application in practice in this country. As a start, we have been able to activate one battalion, the 711th Railway Operating Battalion, now at Camp Claiborne, La. Line and terminal facilities and equipment are being furnished. Two separate battalions are assisting in building the railroad between Camps Claiborne and Polk. It is expected that early in 1942, this battalion will be performing regular railway duties. Then in maneuvers, our theories can be tested, or if war comes, there will be a unit to serve as a spearhead for the mobilizing M. R. S. We shall have a laboratory to test equipment, methods, organization, hasty reconstruction. And finally, 70 years later than the Germans, and 40 years later than the British, we shall have a military training center at which some force will always be training, and at which our Reserve forces can go for short periods better to learn their military duties.

The officers of the 711th have been drawn from ten American railroads. The first Commanding Officer had railroad experience before joining the regular forces; the Adjutant had a course as a student observer under Colonel Gray on the Omaha Railway. It has astonished me how quickly they have welded themselves into a real unit. The similarity between military and railway organizations is marked; railway men become soldiers in a minimum time. Quite a few of the enlisted men have had railway experience. We hope to be able to train others in less time than usually considered necessary, there being available no more young railway men of military age.

The lessons from Europe are obscure. England, the entire island a fortress, has not mobilized her railway forces, but is grandly carrying on with her railroads on a quasi-military basis. The collapse of the French railway service in 1940 was no doubt only a part of the disintegration of the forces as a whole. The marvelous supply accomplishments of the German forces in their speedy drives seem to have been performed initially by trucks. But, I cannot conceive any major military operation in which all forms of transportation will not be needed to the utmost. German success on the southern Russian front only followed the cutting of the vital railway supply lines from Moscow. The air forces on both sides have considered railway yards and centers as primary bombing targets. The Germans have speeded railroad rehabilitation in occupied territories. So I am convinced of the continuing importance of a military railway service.

There are still many problems to solve, and we are trying to solve them.

Rail-Highway Co-Ordination Much Increased

THE Interstate Commerce Commission has just released its summary of highway motor vehicles in which steam railways had a financial interest as of December 31, 1940, and December 31, 1935. This summary indicates strikingly how co-ordinated service increased during the five-year period. In 1940, the total assets of the railways in motor lines amounted to $131,830,583, as compared with $87,242,678 in 1935, an increase of $44,587,905, or 51.1 per cent. During the same period, the investments in plant and equipment rose from $57,007,343 in 1935 to $99,552,114 in 1940, an increase of $42,544,771, or 74.6 per cent.

These figures do not include the fleet of the wholly railway-owned Railway Express Agency, which (including the Southeastern Express Company) amounted to 8,167 gasoline and 1,230 electric highway motor vehicles in 1935. This total of 9,397 units was increased, in the five years by 2,638 units, the fleet at the end of 1940 consisting of 11,464 gasoline and 571 electric highway units. Also, the figures do not include any of the thousands of vehicles operated directly by the railways other than through subsidiaries; examples being the many train-connection bus services and such truck operations as that of the Great Northern, many of which constitute more than a thousand daily route miles of truck operation. The figures also do not include the large number of trucks operated by short lines throughout the country.

Magnitude of Operations

Without these large operations, the picture presented in the I. C. C. summary must naturally be considered as incomplete. Even so, it does portray the magnitude of the co-ordinated operations of the railways. Of the total assets of the railways in highway subsidiaries, the Western district is considerably in the lead, showing a figure of $74,238,978, which is an increase of $25,955,096 over the 1935 figure of $48,283,882. The railways in the Eastern district had assets of $55,479,248 in highway subsidiaries as of December 31, 1940, compared with $38,104,685 in 1935, an increase of $17,374,563; while the figures for the Southern district are $2,112,357 in 1940, as compared with $854,111 in 1935, an increase of $1,258,246.

Western District

The list of railways in the Western district and the

highway subsidiaries involved in each case, as reported by the I. C. C. are as follows:

A. T. & S. F.	Santa Fe Transportation Company
	Santa Fe Trail Transportation Company
C. B. & Q. (C. & S.)	Burlington Transportation Company
	Denver & Interurban Motor Company
	Denver, Colorado Springs, Pueblo Motor Way
	Denver-Salt Lake-Pacific Stages
D. & R. G. W.	Denver, Colorado Springs, Pueblo Motor Way
	Denver-Salt Lake-Pacific Stages
	Rio Grande Motor Way
G. N.	Northland Greyhound Lines
K. C. S.	Kansas City Southern Transport Company
L. & A.	Landa Motor Lines
	L. A. & T. Transportation Company
M. & A.	M. & A. Transportation Company
M. P.	Denver, Salt Lake, Pacific Stages
(I. G. N.-B. S. L. & W.-	
St. L. B. & M.-N. O. T. & M.)	M. P. Freight Transport Company
	M. P. Transportation Company
N. P.	Northern Pacific Transport Company
St. L.-S. F.	Frisco Transportation Company
St. L. S. W.	Southwestern Greyhound Lines
	Southwestern Transportation Company
S. P.	Pacific Motor Trucking Company
(T. & N. O.-N. W. P.)	S. P. Transport Company
	Pacific Greyhound Lines
	Southwestern Greyhound Lines
	Southwestern Transportation Company
	Pacific Motor Transport Company
	Pacific Truck Express
S. P. & S.	S. P. & S. Transportation Company
T. & P.	T. & P. Coaches
	T. & P. Motor Transport Company
U. P.	Interstate Transit Lines
	U. P. Stages
	U. P. Stage Company
	Motor Coach Terminal
	Union Stage Terminal Company
	Utah Parks Company
	Union Motor Coach Terminal Company

Eastern District

The reports on the Eastern district show the following subsidiaries:

B. & O.	Camden Warehouses
	Blue Line Transfer
	Keeshin Freight Lines
	West Virginia Transportation Company
Bangor & Aroostook	B. & A. Transportation Company
B. & M.	B. & M. Transportation Company
C. of N. J.	Jersey Central Transportation Company
C. V.	C. V. Transit Corporation
C. I. & L.	Monon Transportation Corporation
Erie	Anchor Motor Freight
	Buffalo Delivery
	Cleveland, Columbus & Cincinnati Highway
	Consolidated Cartage & Storage Company
	Daniel Creedon & Sons Trucking Company
	Detroit Delivery
	Motor Express
	Ohio Delivery
	Superior Transfer Company
	Niagara Freight Lines
	Akron Parcel Delivery
L. V.	Wyoming Transport Company
Me. C.	Me. C. Transportation Company
N. Y. C.	Central Greyhound Lines
N. Y. N. H. & H.	New England Transportation Company
	Providence, Hartford, Norwich Lines
	I. R. T. Company
	Berkshire Street Railway Company
	County Transportation Company
	Soundview Transportation Company
Penna.	Alko Express Lines
	Aronimink Transportation Company
	Baltimore Transfer Company
	Buffalo Storage & Carting Company
	Central Transit Company
	Cleveland Cartage Company
	Eagle Transfer Company
	Edwards Transfer Company
	Excelsior Express Company
	Excelso Trucking Company
	Hill Transfer Company
	Merchants Trucking Company
	Metzger Cartage Company
	Motor Freight Express
	Peninsula Auto Express Company
	Penn Bus Company
	Pennsylvania Greyhound Lines
	Pennsylvania Truck Lines
	Scott Brothers
	Scott Truck Lines
	Toledo Cartage Company
	Truck Leasing Corporation
	Union Station Transfer Company
	Union Transfer Affiliated Company
	Western Express Company
	Willett Company
	W. G. Corporation
Penna.-Reading Seashore	Pennsylvania - Reading Motor Lines
Reading	Reading Transportation Company

Southern District

The subsidiary highway companies in the Southern district are as follows:

C. of Ga.	C. of Ga. Motor Transport Company
Georgia	Georgia Highway Transport Company
G. M. & O.	Gulf Transport Company
	Mobile & Ohio Transportation Company
I. C.	Central Transportation Company
N. S.	N. S. Bus Corporation
R. F. & P.	Richmond Greyhound Lines

Estimate Steel Needs for 1942

Will require 6,613,113 tons for maintenance and equipment—Agree to meet production schedules—Eastman outlines policy

RAILROADS and car and locomotive builders will require delivery on 6,613,113 net tons of iron and steel during the twelve months of 1942, according to estimates which have been prepared and revised by the roads and submitted to the Office of Defense Transportation. This total is one third less than was originally estimated and includes 4,424,632 net tons of steel for maintenance and 2,188,481 net tons for new cars and locomotives.

The figures, made available after a meeting of the Special Purchasing Committee of the Purchases and Stores Division—A. A. R. which was held in Washington, D. C., on Wednesday, had been requested by Director Joseph B. Eastman of the Office of Defense Transportation. On the day previous the newly formed Railroad Industry Advisory Committee to the Office of Production Management (since absorbed by the War Production Board) held a meeting attended by V. V. Boatner, head of the ODT Division of Railway Transport, and C. D. Young, chief of the Section of Materials and Equipment. The committee assured OPM that the railroad industry will meet the production schedule recently outlined by the former Supply, Priorities and Allocations Board to build by the first of May 36,000 freight cars in addition to the 9,000 which are expected to be built this month.

The estimates of the steel required by the railroads and equipment builders this year include the materials previously estimated for that program which are included with 121,827 freight cars and 974 locomotives which it is now proposed to build before the end of the year. This includes 29,046 cars to be built in railroad shops and 62,781 cars to be built in shops of equipment builders and delivered by October 1, and 30,000 cars to be built in railroad and contract shops for delivery between October 1 and the end of the year, while the locomotives include 364 steam, 558 Diesel-electrics, 33 electric and 19 locomotives of other types.

The materials to be acquired this year in the aggregate include 2,122,530 tons of plates, shapes and bars, 677,817 tons of steel castings, 230,325 tons of axles, 90,565 tons of steel tires, and 197,733 tons of wheels. They also include 96,855 tons of forgings and 6,544,715 tons of track materials, comprising 1,632,394 tons of steel

Table 1—Iron and Steel Products to Be Acquired Through Purchase for Delivery

	Plates, shapes, bar, sheets, billets, roofs, doors, ends, fabricated and pressed steel parts, etc.	Side Frames	Bolsters	Couplers and Yokes	Draft Gears	Other Castings	Axles	Loco. Tires	Wheels One Wear	Wheels Multi-Wear	Crank Pins	Piston Rods	Other Forings	Bolts, nuts, washer, tubes, flues pipe, nails, springs, etc.
Railroad Maintenance ...	847,418	31,447	14,465	54,600	36,934	103,782	43,524	57,893	24,802	85,401	5,983	2,372	26,605	265,877
New Cars For Delivery to October 1, 1942														
Railroad Shops	306,891	30,850	21,679	17,829	7,781	18,812	43,901	141	25,638	12,642	....	....	3,938	25,367
Car Builders.	536,104	56,209	37,014	28,867	14,879	16,908	83,647	....	24,307	....	....	....	31,141	32,463
For Delivery October to December, 1942	354,780	38,400	25,500	19,200	10,500	15,750	52,530	....	18,360	....	....	....	16,170	24,300
New Locomotives..	77,337	....	....	740	254	75,417	6,723	32,531	....	6,583	566	290	9,790	20,298
Grand Total....	2,122,530	156,906	98,658	121,236	70,348	230,669	230,325	90,565	93,107	104,626	6,549	2,662	87,664	368,305

Table 2—Iron and Steel Products to Be Acquired Through

Month	Plates, shapes, bar, sheets, billets, roofs, doors, ends, fabricated and pressed steel parts, etc.	Side Frames	Bolsters	Couplers and Yokes	Draft Gears	Other Castings	Axles	Loco. Tires	Wheels One Wear	Wheels Multi-Wear	Crank Pins	Piston Rods	Other Forgings	Bolts, nuts, washers, tubes, flues, pipe, nails springs, etc.
January	108,943	6,029	3,436	7,014	3,424	11,542	8,632	4,764	4,750	8,793	502	186	2,934	24,932
February	94,140	6,832	4,115	6,776	3,651	11,421	8,222	4,747	4,607	7,801	447	188	2,695	25,265
March	108,143	6,927	4,066	6,977	4,174	10,980	8,839	4,831	4,994	7,918	506	218	2,669	25,918
April	104,869	6,126	3,471	6,466	3,963	10,922	7,827	4,909	4,792	8,201	504	210	2,804	24,715
May	104,839	5,521	3,069	6,159	3,965	10,434	7,458	5,094	5,039	7,962	524	213	2,595	24,919
June	99,883	5,270	3,016	5,991	4,067	10,008	7,090	5,134	4,613	8,105	526	178	2,507	24,221
July	97,641	4,823	2,624	5,749	3,749	10,086	6,254	4,702	4,065	8,068	497	214	2,368	24,595
August	92,660	4,054	2,199	5,450	3,480	9,661	6,192	4,694	3,584	8,085	480	196	2,316	23,969
September	88,863	4,097	2,767	5,434	3,580	9,566	6,597	4,749	3,656	8,714	518	208	2,405	23,858
October	90,496	4,441	2,542	5,443	3,628	9,585	6,966	4,804	3,756	8,844	492	176	2,573	23,508
November	83,897	3,811	2,352	5,271	3,423	9,167	6,536	4,964	3,219	7,890	475	193	2,284	23,280
December	79,935	4,366	2,487	5,699	3,611	9,222	6,812	4,642	3,365	7,662	512	192	2,393	22,064
Year	1,154,309	62,297	36,144	72,429	44,715	122,594	87,425	58,034	50,440	98,043	5,983	2,372	30,543	291,244

——* Includes steel for cars and locomotives to be built or repaired in railroad shops for delivery by October 1. Excludes steel required by commercial builders for fabricating new cars and locomotives or for repair work.

rails, 887,883 tons of truck fastenings, 103,262 tons of frogs, switches and crossings and 137,046 tons of steel for bridges.

In his request from the railroads for these estimates, Mr. Eastman referred to requests made by SPAB for similar information and stated that, with the pressure for production of munitions and implements of war, it is the obvious intention of those in authority to make available for this purpose the greatest possible supply of materials and that every other demands upon the total supply will be scrutinized with the utmost care and pared to the minimum.

The importance of transportation as a vital part of the defense and war mechanism is, he said, appreciated by those in authority. At the same time, he added, there is a determination to insist upon the maximum possible use of existing equipment and facilities, even if it involves expedients to which the railroads and other transportation agencies would be averse under normal conditions. In other words, Mr. Eastman pointed out, the railroads must forget individual competitive desires to a great extent and work together for the common good of all those concerned.

During the meeting of the Railroad Industry Advisory Committee with OPM it was also agreed to standardize the construction of freight cars as outlined recently by the A. A. R. At the same time the industry representatives asked the war agency to resurvey the industry's needs for steel castings to assure that this material will continue to be made available, especially in view of proposals by the government to draw more and more on the castings industry for materials for tanks. The committee also discussed the requirements for passenger service in the light of the increased military traffic, the curtailed use of automobiles and the reduced supplies of rubber for civilian needs and it urged that materials should be made available immediately for repairs to existing equipment and that reconsideration be given of the need for new coaches and sleeping cars.

Copper Slashed

It was brought out in the Purchasing and Stores Division's meeting that redesigning of freight car journal bearings is expected to reduce the copper content by 8 to 10 per cent and require about 6,000,000 lb. less copper annually; and that the railroads have agreed to accept certain steel products without the usual content of copper, the result of which will be to reduce the annual requirement for copper by an additional 3,600,000 lb. It was also announced that studies are now under way to find substitutes for steel castings where the supply of these castings are likely to be reduced. The committee took the position that, while the A-3 rating has in general been adequate to obtain most of the essential materials for freight car and locomotive construction and maintenance, restrictions contained in the latest order, P-100, were apparently issued without adequate provision for the needs of the railroads and that the A-10 priority in this order does not assure materials necessary for the maintenance of passenger coaches, floating equipment and roadway and structures.

During 1942 for Railroads, Car Builders and Locomotive Builders—Net Tons

	Rail (Net Tons)	Track Fastenings	Frogs and switches guard rails, etc.	Steel for bridges, buildings, etc.	Grey Iron Castings	Malleable Castings	Pig Iron	Scrap Iron & Steel	Grand Total
Railroad Maintenance	1,632,394	887,883	103,262	137,046	33,812	14,125	10,979	4,028	4,424,632
New Cars									
For Delivery to October 1, 1942									
Railroad Shops	.....	.....	.....	.....	197	975	6	....	516,647
Car Builders	.....	.....	.....	.....	....	....	....	....	861,539
For Delivery October to December, 1942	.....	.....	.....	.....	....	....	....	....	575,490
New Locomotives	.....	.....	.....	.....	3,490	786	....	....	234,805
Grand Total	1,632,394	887,883	103,262	137,046	37,499	15,886	10,985	4,028	6,613,113

Purchase for Delivery During 1942 by Months—Net Tons*

	Rail (Net Tons)	Track Fastenings	Frogs switches, guard rails, etc.	Steel for bridges buildings, etc.	Grey Iron Castings	Malleable Iron Castings	Pig Iron	Scrap Iron & Steel
January	174,803	80,406	10,421	8,665	2,789	1,374	935	300
February	211,451	90,701	10,624	8,322	2,912	1,376	845	242
March	270,856	120,508	12,794	11,483	2,795	1,402	816	797
April	227,474	115,321	11,980	11,002	3,147	1,363	965	312
May	199,173	109,558	10,172	11,675	2,915	1,319	902	431
June	156,860	95,515	9,489	16,249	3,005	1,302	944	457
July	120,672	75,601	8,372	14,306	2,778	1,254	896	195
August	82,255	64,702	7,554	13,262	2,891	1,166	943	229
September	59,314	43,334	7,034	14,798	2,649	1,144	879	310
October	39,964	32,660	5,601	11,548	2,743	1,131	1,002	370
November	51,408	31,625	5,046	8,608	2,763	1,148	885	190
December	38,164	27,952	4,175	7,128	2,622	1,121	969	195
Year	1,632,394	887,883	103,262	137,046	34,009	15,100	10,985	4,028

Curtailment of the Use of Copper

SUPPLEMENTING the circular letter issued recently by the Association of American Railroads, Mechanical division, on the curtailment of the use of copper by the railroads, V. R. Hawthorne, executive vice-chairman, wrote to all members of the association on January 19, calling their attention to a modified design of journal bearing to be used during the present war emergency in order to conserve copper, tin and other critical materials. A drawing of the modified design was included with the letter.

In this letter, the manufacturers of journal bearings, including those railroads which make their own bearings, are urged to provide pattern equipment for the manufacture of this new design of bearing without delay.

One of the features of this modified design is that the marking has been revised to eliminate the initials of the purchaser. This is also intended to conserve critical metals, as it will eliminate the necessity for manufacturers carrying a large stock of bearings for different purchasers and bearing the purchaser's initials or markings.

It is urged, in the Mechanical division letter, that every effort be made to conserve copper and other strategic metals contained in journal bearings. Owing to the great number of these bearings constantly wearing out and being renewed, the possible aggregate savings are very large.

The manufacturers of journal bearings are requested to supply bearings of the modified design as soon as their pattern equipment can be changed. It is pointed out that it will take some time before these new patterns are available and, in the meantime, it will be permissible to accept bearings made to the former standard design.

The Rosette Method of Stress Measurements

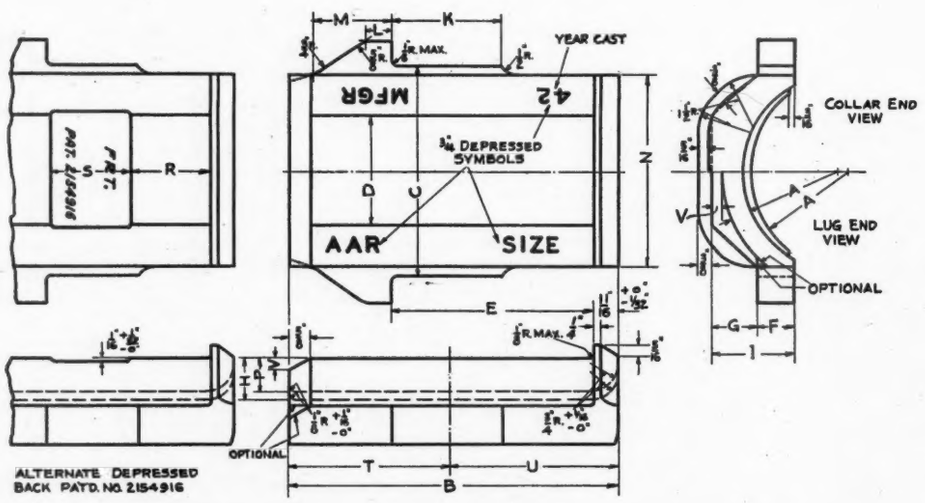
(*Continued from page 256*)

for use in the field as well as in the laboratory. Such a method is available, although its use until recently has been somewhat restricted due to the need of special training and the time and labor required in computation of the results. By developing a special technique and simplifying the computations to a slide rule operation, the authors, in an article which appeared in the December, 1941, and January, 1942, issues of Railway Mechanical Engineer, show how this method of stress measurement can be used by mechanical and test engineers to solve some of their problems in stresses in railroad equipment.

This method has been successfully employed to measure stresses in wrought steel car wheels. The various steps in the manufacture of the wheels involve heating and cooling operations which introduce internal stresses. The magnitude and direction of these stresses resulting from variations in the processes have been studied and methods developed at the Butler plant of The American Rolling Mill Company for their control. It was found especially important to regulate the cooling of the wheels after dishing and again after heat treatment. The methods of heat treatment and controlled cooling used at this plant are based on the results of stress measurements made by the method described. In addition, use has been made of this method in studying the effect of service conditions, such as brake applications, on the internal stresses.

The procedure can be used on any structure to find the direction and magnitude of the stresses on any flat surface. Since the highest stresses are practically always on the surface, this method answers nearly every practical need.

The method is carried out by measuring the changes in length of four intersecting gage lines on the surface



Modified Design of Journal Bearing Specified by the A. A. R., Mechanical Division, for Use During the Present War Emergency in Order to Conserve Copper, Tin and Other Critical Materials

CLASS	SIZE JOURNAL	DIMENSIONS IN INCHES																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S	T	U	V
A	3¾×7	1 23/32	6½	4¼	2	4 9/16	⅞	1⅛	15/16	2	5½	2¾	½	1⅝	3¾	¾	1 1/16	2	3⅛	3⅝	¼
B	4⅜×8	2 5/32	7½	4⅝	2 5/16	4 1/16	2 7/32	1 9/32	15/16	2⅛	5⅝	2¾	⅝	1¾	4⅜	¾	2 1/16	2¼	3⅝	3⅞	¼
C	5×9	2 19/32	8½	5⅛	3⅛	5⅛	1 7/32	1 7/32	1 1/16	2¼	6⅛	3⅛	11/16	2 1/16	4⅞	⅞	2 1/16	2½	4⅛	4⅜	5/16
D	5½×10	2 23/32	9½	5⅞	3⅛	5⅞	1 1/16	1 5/16	1 1/16	2⅜	7⅜	3⅛	¾	2¼	5⅜	⅞	2 1/16	2½	4⅝	4⅞	5/16
E	6×11	3 5/32	10½	6⅜	3½	6 9/16	1 ¼	1½	1 5/16	2 5/16	8⅜	4	13/16	2 1/16	6¼	1	3 5/16	2 9/16	5⅛	5⅜	⅜
F	6½×12	3 5/32	11½	7⅜	4	7 5/16	1 7/16	1 9/16	1 5/16	3	8⅞	4	⅞	2⅛	6½	1⅛	3½	3⅜	5⅝	5⅞	⅜
PERMISSIBLE VARIATIONS																					
PLUS		1/32	1/32	1/32	1/32	1/16	1/32	3/64	1/16							1/32					
MINUS		1/64	1/32	1/32	1/32	1/32	3/64	0	1/32							1/32					

in question. The pattern made by the four equally-spaced gage lines 45 deg. apart is called a "rosette," and from this the method has acquired its name. These gage lengths may be measured by any suitable extensometer, either permanently attached to the surface, or applied by hand pressure to suitable gage marks. The changes in length of the four gage lines are combined by a method of calculation which may be carried out quickly by means of a slide rule, and which finally gives the change in stress in any direction through the center of the rosette, and also the maximum or greatest change in stress and its direction.

In all cases the stress computations are based on differences in the lengths of the gage lines of the rosette between some initial and some final condition. In other words, from two sets of readings a change in stress can be calculated representing a change from one state of stress to another. If the initial state is one of zero stress, this difference will represent the actual stress at the time the final readings are taken. This would presumably be the case in the example of the tie-rod. Such a condition is not often encountered in practice, because in more complicated engineering structures there will always be at least some stresses present initially. These are commonly known as internal stresses, and their magnitude and direction must be known before the actual effective stresses in the loaded structure can be determined.

The initial stresses can be determined only by cutting out the rosettes to relieve them from the restraint of the surrounding metal, and measuring the changes in the lengths of the gage lines resulting from the removal of this restraint. Although this may be impractical in many engineering structures, the authors were able to use it for a complete study of wrought steel wheels by either of two procedures. One of these consisted of using duplicate wheels which had been processed identically, cutting one for the determination of the initial or "internal" stresses, and measuring the changes in stress in the other wheel resulting from the service conditions to be studied. The other method required no duplicate wheels, because the internal stresses can be determined at the conclusion of the measurement of the change in stresses due to the service conditions. This is done by cutting out the rosettes after the service test is completed. The differences between the initial readings and the readings after removal of the rosettes are used to compute the internal stresses.

One of the advantages of this method is that, due to a peculiar relationship between deformations on the four gage lines, it is possible to verify the reliability of the extensometer readings, and thus have a check on the accuracy of the results.

Another advantage of the method is that it is non-destructive, and can be used to measure changes in stress under service conditions. This opens up a wide field of applications. Stresses due to static loading on stationary or moving structures, as well as transient or vibratory stresses can be measured, provided suitable extensometers are used for measuring the deformation on the gage lines of the rosettes. Furthermore, as has been explained, the internal stresses resulting either from manufacturing operations or service treatment, can often be measured on the same rosettes that are used to measure stresses due to service loads.

How the Help Is Treated Where the Government Has All the Jobs

The higher-ups in various government-controlled industries of Soviet Russia, where production is "for use and not for profit," have long been notable for invoking what seem by "capitalistic" American standards to be harsh penalties on minor officers and employees found guilty of laxity or stupidity. But a copyrighted article by Walter Kerr appearing in the New York "Herald-Tribune" for January 11 cites instances of long prison terms and death sentences for failure by railroad employees and supervisors which would indicate that Russian discipline has become even more severe in the desperate struggle with Nazi Germany. The article does not mention the authors of the disciplinary action by name or position, but it is presumed that they are major executives in the People's Commissariat for Transport which operates the 52,400-mi. Russian railroad system.

Mr. Kerr reports that closer watch is being kept on the railroads than on any other industry in the country. Severe sentences have been handed to railroad employees and officers convicted of disorganizing railroad transport, causing delays, stealing or rendering cruel treatment to evacuees. A stationmaster was sentenced to prison for eight years for refusing to "accept" nine trains, although the yards under his control had capacity to take care of them. [According to time-honored European operating practice which still persists except on some lines in Western Europe, trains progress along their route by consecutive "acceptances" by stationmasters or block operators—without centralized supervision—who thus possess the authority over train movement exercised in this country by dispatchers.—Ed.]

Two control employees received five years' and two years' imprisonment, respectively, for holding back for five hours a long train which should have been dispatched immediately. An assistant railroad stationmaster got two years for holding back 100 cars for four days on a side track, which could have been placed in service.

Lack of consideration in providing minimum conveniences for refugees was also punished severely. Three minor railroad officers received five, three and two years' prison sentences, respectively, for sending off women and children evacuees in cars not equipped with stoves and other necessities; for failure to take measures to prevent overcrowding at the stations in their jurisdiction and for not taking further steps for passengers' comfort. Four other employees who did not supply stoves to evacuees on trains without bribery got five to seven years apiece. A railroad guard who was assigned to watch freight cars loaded with foodstuffs was sentenced to be shot for stealing 14 sacks of flour and 330 lb. of grain and selling them to the stationmaster and three other railroad employees. His buyers got four years' imprisonment apiece.

Even shippers and receivers of freight fall under the shadow of severe discipline. A factory manager, for example, received a two-year sentence for failure to unload a group of cars for three days.

Meantime, Harold Laski, the famous British left-wing political philosopher—who is very popular in some government circles in Washington—has written a letter to the New York Times in which he urges Americans and Britons to chum up for the building of the peace after victory. The "new epoch" to which he wants us to lead the way, he says, requires that the government *"own and probably itself operate the essential instruments of production . . . We have entered into the epoch of planned economy. The pivotal authority in planning is bound to be the state."*

In other words, what this eminent Briton thinks we ought to fight for is to get rid of the ignoble profit motive, and to put a policeman in its place behind every citizen's back, to make him hit the ball. At any rate experience demonstrates that in the socialistic Utopias, where "planned economy" rules, harsh police measures have to be taken when the maligned profit motive is removed as a spur to individual effort.

NEWS

Utilities Board on NYC Service

Checks up after complaints and finds improvement in punctuality and cleanliness

Of the runs of 49 through trains on the New York Central selected for study by the New York Public Service Commission, 24.2 per cent arrived "late" (i.e., more than 5 min. after scheduled time) at terminal stations in the state in the first 11 months of 1941 as compared with 40.6 per cent in the first 11 months of 1940. These statistics were reported by W. G. Himes, transportation engineer for the commission, at a "check-up" hearing in New York on January 8 to determine to what extent the road had improved its passenger service since the last hearing on the subject was held in February, 1940 (see last week's *Railway Age*, page 228). Eliminating all delays chargeable to late arrivals from connections (amounting to 53.8 per cent of the total), Mr. Himes found that other trains caused 34.7 of the remaining delays; station work 38.2 per cent; track, 7.8 per cent; equipment failures, 4.8 per cent; meeting and passing trains, 5.4 per cent, and other causes, 9.2 per cent.

A. H. Wright, vice-president and general manager, New York Central, Buffalo and East, gave it as his opinion that an attainable on-time performance should be about 80 per cent of total runs, and that Mr. Himes' study showed that the road had virtually attained this figure. Further, the road's own records of all passenger trains Buffalo and East April to November, 1941, inclusive, show 84 per cent of the runs on time. In his testimony, Mr. Wright pointed out that collisions with automobiles account for a great deal of delay. Some 104 passenger trains were delayed a total of 45 hr. 8 min. from this cause in the state in July to December, 1941, inclusive.

The witness testified that the road made substantial improvements in 1941 to speed up service. A study of the entire main line was made to determine what speed restrictions might be lifted consistent with safety. In March reverse signaling was placed in service on the westbound main between Garrison and Harmon to permit both tracks to be used for eastbound movement during the morning peak. Track and signal improvements at Utica permitted raising speed limit from 20 to 50 m. p. h. and in Poughkeepsie from 50 to 75 m. p. h. Longer cross-overs at Albany now permit higher speeds for westbound passenger trains. During the year more than $500,000 was spent for renewal and re-spacing of signals on the main line east of Buffalo, the new signals being of the color-light type. This, he testified, is part of the program "looking toward the conversion over a period of the next five or ten years of all old-type signals into color-light signals with improved approach lighting." Of significance in suburban service was the placement in service on December 14 of an additional track between Mt. Vernon and Fleetwood, which cuts delays to Harlem division trains more than half during the morning peak.

The 1941 program of the road also included improvements for passengers' comfort in calling for the air-conditioning of 111 coaches and 11 diners and purchase of 95 new coaches. Also 32 new "Empire State Express" cars were received in that year. For 1942 there has been authorized the air-conditioning of 160 more railroad-owned cars. The road now owns a total of 686 air-conditioned cars and operates, in addition, 689 Pullman-owned cars. It has under way a program for modernizing 98 suburban coaches.

Mr. Himes also presented records of staff inspections of cars at initial terminals, subsequent to the February, 1940, hearing, classing 67.6 per cent of the cars "clean," 29.1 per cent "fair;" and 3.3 per cent "dirty." Inspections previous to that hearing classed 36 per cent of the cars "clean"; 25 per cent "fair;" and 39 per cent "dirty." In this connection, Mr. Wright testified that the Central has increased the number of car cleaners in his region from 503 on January 1, 1939, to 783 regular cleaners on January 1, 1942. Also the road has installed motor-driven machines for washing upholstered seat backs and cushions at six stations.

Maritime Commission Establishes Division of Forwarding

Establishment of a Division of Forwarding and appointment of Captain Horatio L. McKay, president of Wilford & McKay, New York steamship agents, as its director has been announced by the United States Maritime Commission. The new division will handle the commission's "expanding freight forwarding operations that include lend-lease shipments to countries allied with the United States in the war"; it "will expedite and direct the movement of cargo from inland cities to the seaboard."

Captain McKay will supervise these operations and will report to the Maritime Commission through its general director of shipping. He will make his headquarters for the present time at New York.

Finds Livestock Pick-up Is Okay

I. C. C. reverses itself in case involving rural pick-up by railroads

Asserting that Motor Carrier Act amendments embodied in the Transportation Act of 1940 "clearly" recognized "the fact that railroad collection and delivery practices and customs have been, and will be, affected by modern motor truck operations," the Interstate Commerce Commission has reversed a previous finding and now approves tariffs providing for pick-up within a 10-mile radius of certain stations in Illinois, Iowa and Wisconsin of livestock destined to Chicago, East St. Louis, Ill., Peoria, Springfield, Madison, Wis., and Indianapolis, Ind.

The report on further hearing in No. 28216 was written by Commissioner Splawn, a dissenter to the original decision which was reviewed in the *Railway Age* of July 6, 1940, page 47. Dissenting expressions came from Commissioner Porter and Commissioner Johnson, with the former complaining that the majority report reflected what he regarded as a disposition of the commission "in these recent days, under the strain and stress of vigorous and sometimes even bitter competition between different types of carriers," to depart from "sound and wholesome principles." Although, as noted above, Mr. Johnson filed a separate expression, he also agreed with Commissioner Porter. Commissioner Patterson, concurring-in-part, subscribed to the majority report, except that he did not agree "that here should be any overlapping of the terminal areas of the various stations," and he reserved judgment "so far as prejudice at other points is concerned." Commissioner Alldredge joined in Commissioner Patterson's expression, while Commissioner Rogers did not participate in the disposition of the proceeding.

In sanctioning the pick-up arrangements the majority required that they be surrounded with safeguards to insure that they will be restricted "to lawful terminal areas as defined herein." In other words the commission stipulated that county maps should be made a part of each contract with truckers, and that such maps should be made available to the agents at stations where the service is in effect. "These maps," the commission went on, "should define the terminal areas of each

(*Continued on page 273*)

Union Chiefs vs. Big Truck Bill

Join state highway commissions in opposing further erasure of states' rights

Organized railroad labor in the person of J. G. Luhrsen, executive secretary of the Railway Labor Executives Association, appeared before a Senate interstate commerce subcommittee last week in opposition to S. 2015, Senator Wheeler's (Democrat of Montana) bill to give the Interstate Commerce Commission power, upon complaint, to set aside state laws governing sizes and weights of motor vehicles engaged in interstate commerce.

Mr. Luhrsen told the subcommittee at the outset of his testimony that the purpose of the bill is to make trucking cheaper rather than to increase safety and speed up traffic on the highways. Mr. Luhrsen also reminded the subcommittee that in the case of the railroads they had constructed their heavier roadbeds before they attempted to run larger equipment, while he felt that the trucks were taking the opposite approach. They were building heavy equipment and then demanding that the federal government force the states to increase the capacity of their highways so that the heavier equipment could be handled on them.

Also, the railroad labor representative suggested that if the trucking firms are willing to take federal and state subsidies to maintain the roads upon which they travel, they should be willing to haul government material at reduced rates, much the same as the railroads do with land-grant mileage.

Moreover, Mr. Luhrsen did not think much of the national defense argument in favor of the bill. He had been looking into the picture and could find no evidence that liberalizing of truck laws is necessary to national defense. He also felt that the country should ascertain whether or not the big trucks are paying their share of the upkeep of the highways, and he went on to tell the subcommittee that the Transport Study Board created under the Transportation Act of 1940 should be given an opportunity to report on this question.

The railroad labor executive was of the definite opinion that there is no need for a duplicate system of transportation now that the railroads are able to handle the existing traffic. Also, he asked the subcommittee who was going to pay the bill for improving the substandard highways and bridges so that they would accommodate the larger trucks.

David Kaplan, chief economist for the International Brotherhood of Teamsters, Chauffeurs, Warehousemen & Helpers of America, appeared briefly in favor of the bill. He informed the subcommittee that its passage would make it possible to deal with what he called restrictive situations in Kentucky, Oregon, Texas and Pennsylvania—against which drivers had complained. He urged the subcommittee to recommend the legislation in the interests of national defense, and went on to declare that laws such as those in Kentucky hampered the efforts of local unions to obtain better wages because of the uneconomic operation that they caused.

A letter from William S. Knudsen and Sidney Hillman, director-general and co-director, respectively, of the Office of Production Management, revealed that that agency "strongly favors the passage of legislation to accomplish the purposes of this measure." The letter went on to point out that much national defense material moves by truck and that often shipments had been held up because of restrictive laws of some states on sizes and weights of motor vehicles.

T. Richard Witmer, attorney in the Consumer Division of the Office of Price Administration, also appeared in support of the bill, taking the position that any relaxation on the use of trucks should be in the consumers' interest in that the cheaper movement of goods should keep prices down.

A slight flare-up occurred last week when J. M. Brockway, secretary-treasurer of the Independent Truckers of Iowa, charged Joseph Hays, counsel for the Western Association of Railway Executives, with using "fifth column" methods in fighting independent trucking organization in Iowa. Mr. Hays was specifically charged with using a "dummy" to destroy the work of the independent truckers, and supplying this "dummy" with funds from the carriers.

Later, Mr. Hays appeared at the hearing and denied the charges in detail. After considerable discussion of the charges by Mr. Hays, Senator Johnson, Democrat of Colorado, observed that both Mr. Brockway's and Mr. Hays' testimony had no relevancy at the hearing, and the matter was dropped.

The majority of the testimony was given by representatives of the various state highway commissions, all of whom appeared in opposition to the bill, which, in their opinion, would infringe upon their states' rights in the control of the vehicles on their highways.

The hearing was concluded with the testimony of J. E. Corbett, counsel and legislative representative for the Brotherhood of Locomotive Engineers, and J. Ninian Beall, general counsel of the American Trucking Associations, Inc., who appeared in rebuttal. Mr. Corbett opposed the bill on the ground that its enactment would not be in the interests of safety on the highways in that the use of larger trucks would greatly contribute to the number and severity of accidents.

Mr. Beall told the subcommittee that since he had last appeared, the rubber conservation order had greatly changed the picture, and he urged passage of the measure on the ground that the big trucks would conserve rubber by using less in proportion than the smaller trucks since they could carry much larger loads on relatively the same size tires.

Super-Highway Bill

Representative Rankin, Democrat of Mississippi, has introduced H. R. 6405 "to promote the national defense by providing for a four-lane high-speed highway from the District of Columbia to Memphis, Tenn., to be known as the Lee Highway."

How ODT Traffic Section Will Work

Eastman does not expect to take over routing freight unless congestion develops

Because "a number of questions have arisen" as to his "plans relating to traffic movement," Joseph B. Eastman, director of the Office of Defense Transportation, issued a January 16 statement, explaining the role of his Division of Traffic Movement which is headed by John R. Turney. The Division, Mr. Eastman said, will be prepared to take any necessary action but there will be no changes in existing methods unless "plain need is found to exist."

At the same time Mr. Eastman announced the creation of a Division of Inland Waterway Transport, headed by Edward Clemens, of St. Louis, Mo., vice-president of the Mississippi Valley Barge Line Company. The same announcement also revealed that Passenger Traffic Manager Henry F. McCarthy of the Boston & Maine will be associate director of the Division of Traffic Movement. The fact that Mr. McCarthy would join Mr. Turney's staff had previously been announced by Mr. Eastman, as noted in the *Railway Age* of January 17, page 215; and a sketch of Mr. McCarthy's career appeared on page 218 of that issue. Other Division of Traffic Movement appointments announced are those of two assistant directors—Samuel W. Fordyce, who will head the Section of War Traffic, and Walter Bockstahler, who will head the Section of Traffic Channels.

In the aforementioned statement explaining the role of the Division of Traffic Movement, Mr. Eastman said:

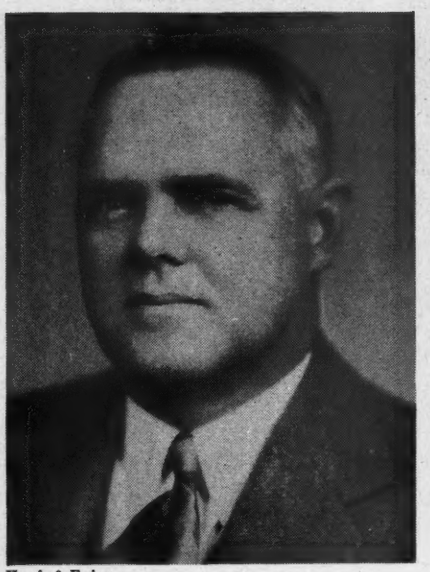
"A word, I think should be said about the functions of the Division of Traffic Movement. It was set up in response to the direction of the President that the Office of Defense Transportation:

> Coordinate and direct domestic traffic movements with the objective of preventing possible points of traffic congestion and assuring the orderly and expeditious movement of men, materials, and supplies to the points of need.
>
> In connection with the United States Maritime Commission and other appropriate agencies, coordinate domestic traffic movements with ocean shipping in order to avoid terminal congestion at port areas and to maintain a maximum flow of traffic.

"These two paragraphs confer very extensive authority and impose an equally heavy responsibility. They relate to traffic movements by 'railroad, motor, inland waterway, pipe line, air transport, and coastwise and intercoastal shipping.' It is not my desire to exercise this authority unless there is clear need for such action, but in view of the heavy responsibility, I must be prepared to act if such need develops. In time of war, also, no one can foresee what changes in conditions may occur, perhaps in the form of sudden emergencies,

"I shall expect the Division of Traffic Movement, therefore, to become fully informed with respect to the organizations and methods by which both war and civilian traffic is now directed and controlled, the results which are being accomplished, and the possible dangers which lie ahead. And I shall expect the Division to

Henry F. McCarthy



Harris & Ewing
Samuel W. Fordyce

Walter Bockstahler

be prepared to act, where action is necessary. Neither the military authorities nor the private shippers of the country, however, need fear that there will be any attempt to change existing methods, unless plain need is found to exist, nor, in that event, without taking counsel of those immediately concerned.

"We all realize that thus far the transportation agencies of the country have taken care of all traffic needs exceedingly well. We also realize that a very large factor in that record of success has been the splendid cooperation which the carriers have received from the shippers, both public and private. It would be a critical mistake to disturb that cooperation or to fail to promote and encourage even more effective cooperation for the future. The fact is, indeed that to be successful in its efforts the Office of Defense Transportation must have the full cooperation of both the shippers and the carriers."

Mr. Fordyce, who heads the Section of War Traffic, was born on October 12, 1899, at St. Louis, Mo., he received his education at Phillips Exeter Academy and Harvard, where he was awarded an A.B. degree in 1921 and a B.S. in 1922. Following his graduation Mr. Fordyce became associated with the late Harvey Couch, later becoming assistant to the general manager of the Arkansas Power & Light Company, and assistant general manager of the Mississippi Power & Light Company. In 1929, he left the utility field to enter the banking business in St. Louis; but he later returned to the Arkansas Power & Light Company as director of industrial development. Mr. Fordyce entered railroad service in 1935 as industrial commissioner for the Louisiana & Arkansas. In 1939 he was transferred to the Kansas City Southern as assistant to the executive vice-president; and he has been assistant to the president of that road since 1941.

Mr. Bockstahler, who heads the Section of Traffic Channels, was born at Evansville, Ind., April 28, 1889, and he was educated in the public schools of Grand Rapids, Mich., and Detroit, where he was graduated from high school in 1907. Mr. Bockstahler entered railroad service in September, 1907, as a stenographer-clerk in the division freight office of the Wabash at Detroit. The following year he became a claim clerk in the same office, and from July, 1909, until April, 1912, he was contracting freight agent at Detroit. From the latter date until February, 1915, he was traveling freight agent for the same road at Buffalo, N. Y., and he was thereafter until February, 1918, westbound freight agent at Chicago. Mr. Bockstahler then became a sales representative, first for the Goodyear Tire & Rubber Company, and then for the Bousman Manufacturing Company; but he was back in traffic work by September, 1918, when he became traffic manager for the Universal Carloading & Distributing Company with headquarters at Detroit. Two months later, in November, 1918, he became Universal's manager at Cleveland, Ohio, and in February, 1920, he was transferred in the same capacity to St. Louis, Mo. In July, 1920, Mr. Bockstahler went to Chicago as assistant to the president of Universal; and he was that company's general eastern manager at New York from November, 1920, until July, 1921, when he became assistant treasurer. In September, 1923, he was elected vice-president, a position which he retained until June, 1925, when he was elected vice-president of Universal's parent company, the United States Freight Company.

During 1930, Mr. Bockstahler was chairman of U. S. Freight's executive committee; and during 1931, he was vice-president of Commerce Freight Company. He became president of Atlas Freight, Inc., in April, 1932, and remained in that position until June, 1933, when he began a previous service under Mr. Eastman as assistant director, Section of Transportation Service, Federal Coordinator of Transportation. Upon leaving that position in June, 1935, Mr. Bockstahler served for a little over a year as vice-president and secretary of the Transportation Association of America; and in August, 1936, he became merchandise traffic manager of the Baltimore & Ohio, serving there until June, 1937. He then became senior vice-president of Keeshin Freight Lines. Remaining in that position until September, 1941.

Missouri Pacific Trains Collide

Four soldiers and a trainman were killed and 27 persons were injured when a Missouri Pacific switching locomotive and a passenger train collided on the main line at Perla, Ark., on January 16.

Money for Referees

President Roosevelt has transmitted to Congress a request for an additional appropriation of $22,500 for the National Mediation Board for the current fiscal year ending June 30, 1942. The bulk of the total $20,000 would be used for salaries and traveling expenses of referees appointed to hear deadlocked National Railroad Adjustment Board cases.

Daylight Saving Time Effective February 9

President Roosevelt on January 20 signed the recently-enacted daylight-saving-time bill which advances standard time by one hour for the duration of the war and for six months thereafter. With the law becoming effective 20 days after its enactment, the President's January 20 action fixes 2 a. m., Monday, February 9, as the time for changing the clocks.

December Operating Revenues 23.6 Per Cent Above 1940

Preliminary reports from 87 Class I railroads, representing 82.7 per cent of total operating revenues, made public January 16 by the Association of American Railroads, show that those roads, in December, 1941, had estimated operating revenues amounting to $390,305,161, compared with $315,685,275 in the same month of 1940 and $309,783,400 in the same month of 1930. The December gross was 23.6 per cent above that for December, 1940 and 26 per cent above December, 1930.

Freight revenues of the 87 roads in De-

cember, 1941, amounted to $317,006,193 compared with $253,753,130 in December, 1940, and $230,789,696 in December, 1930—24.9 per cent above the former and 37.4 per cent above the same month in 1930. Passenger revenues totaled $44,093,310, compared with $34,648,997 in December, 1940, and $46,996,467 in December, 1930—27.3 per cent above the former, but 6.2 per cent below the same month in 1930.

T. & P. Affiliate Gets Relief from Highway Service Restriction

Reporting upon further reconsideration of the case, the Interstate Commerce Commission, Division 5, has relieved the Texas & Pacific Motor Transport Company's operation between Wills Point, Tex., and Gladewater of that condition which had stipulated that shipments transported by highway should be limited to those handled in through rail-truck service involving a prior or subsequent haul on the Texas & Pacific. The proceeding was docketed as No. MC-50544 (Sub-No. 2).

Club Meetings

The Railroadians of America will hold their third annual dinner in New York on Thursday, February 5. The program of the dinner will be built around a mythical annual meeting of railroad stockholders. Robert A. LaMassena, 398 North Maple avenue, East Orange, N. J., is handling reservations.

The New England Railroad Club will hold its next meeting on February 10 at the Hotel Touraine, Boston, Mass., at 6:30 p. m. Major Leicester S. Johnston, Chemical Warfare Service, United States Army, will present a paper on the "Function of Air Raid Precaution Services."

The Anthracite Valley Car Foremen's Association will hold its next meeting on February 16 at the Hotel Redington, Wilkes-Barre, Pa., at 6:30 p. m. The program will include discussions on the 1942 A. A. R. Book of Rules.

Eastern Passenger Agents Elect

The General Eastern Passenger Agents Association elected the following officers for 1942 at its meeting in New York on January 8: President, R. S. Voigt, general eastern passenger agent, Atlantic Coast Line; Vice-President, J. E. Roach, general agent, Canadian Pacific; Secretary, Fred Rainey, assistant general passenger agent, Hudson River Day Line; Treasurer, A. L. Miller, assistant general passenger agent; and Assistant Secretary, M. J. Fox, district passenger agent, Chicago, Burlington & Quincy, all with headquarters at New York.

Seeks Higher Mail Pay

The New Jersey & New York has asked the Interstate Commerce Commission to find that it is entitled to mail pay rates for roads which are less than 50 miles in length. Under such a determination, the road would get a higher rate for the mail that it carries than it now obtains. Previously the commission had found that the road was a part of the Erie, but recently it has gone into bankruptcy and has an independent trustee. Thus, it contends that it is now a separate line less than 50 miles in length and is therefore entitled to a higher rate of mail pay.

Senate Passes New Lock

The Senate has passed and sent to the House S. 2132, a bill introduced by Senator Brown, Democrat of Michigan, which would authorize the construction of a new lock in the St. Marys River at St. Marys Falls Canal, Mich. At the time of the introduction of the bill, former Defense Transportation Commissioner Ralph Budd had pointed out that provision for the lock is made in the pending omnibus rivers and harbors bill, but that he thought the matter of sufficient importance to warrant the introduction of a separate bill, the passage of which could be expedited.

Pension Act Amendments

The House committee on interstate commerce has reported favorably the bill (H. R. 6387) introduced by Representative Crosser, Democrat of Ohio, to extend the crediting of military service under the Railroad Retirement Act.

Representative Collins, Democrat of Mississippi, on January 19, withdrew the bill (H. R. 6357) which he had introduced a few days before to increase by six per cent the amount of annuity or pension payable under the Railroad Retirement Act. Introduction of the bill was noted in the *Railway Age* of January 17, page 225.

"City of Atlanta" First Railroad Victim of War

The first instance of loss of railroad-owned property in this country by enemy action in the second World War is the sinking of the "City of Atlanta" off Cape Hatteras, N. C., early on January 19, by an enemy submarine, with loss of 44 lives. The "City of Atlanta" was operated by the Ocean Steamship Company of Savannah, a wholly-owned affiliate of the Central of Georgia, in coastwise service between New York and Savannah, Ga. Up to about a year ago it carried passengers as well as freight but this service was discontinued when the government reduced the company's fleet by requisitioning.

Would Reduce Rates for Military

Representative Schulte, Democrat of Indiana, has introduced in the House H. R. 6393, a bill which would reduce the rate for transportation by railroad of members of the armed forces, and provide for transportation during certain emergency furloughs.

Section 1 of the bill provides that the Secretary of War shall issue to each member of the military or naval forces stationed at a place more than 300 miles from his home who is granted a furlough because of sickness or death in his immediate family, a certificate or certificates of travel for transportation to his home and return. This certificate would be redeemed by the Secretary of the Treasury at the regular rates for transportation of the members of the armed forces.

Section 2 states that beginning with the 15th day after the passage of the measure, railroads shall transport members of the Army, Navy, Marine Corps, and Coast Guard, when on furlough, at a rate of not more than one-half cent per mile.

New Suit Filed in Ball Case

Another damage suit, this one for three million dollars, was filed in the federal court at Indianapolis, Ind., on January 16 against George A. Ball by Robert R. Young and Allan P. Kirby. The suit seeks damages for alleged losses on miscellaneous securities which figured in the transactions by which Ball disposed, in 1937, of Van Sweringen railroad securities of which he had gained control. It also asks for the appointment of a receiver for the Ball Foundation, alleging that the foundation is "threatening to dispose of a substantial part of its assets." In a previous suit, still pending, Young, Kirby and the Seaboard Company, Ltd., asked five million dollars for alleged losses on Alleghany Corporation stock.

Northwest Board to Meet January 29

Victory Depends on the Use Made of Cars, will be the keynote of the nineteenth annual and sixty-first regular meeting of the Northwest Shippers Advisory Board at Minneapolis, Minn. on January 29. The subject will be discussed by J. George Mann, traffic manager of Northrup, King & Co. and chairman of the Board's Committee on Car Efficiency and his address will be supplemented by comments from individual chairmen of commodity committees on the progress being made in the efficient use of cars. An open forum will also be held, during which any subject of transportation will be discussed off the record. At a special luncheon to be held in co-operation with the Traffic Club of Minneapolis, Congressman Oscar F. Youngdahl will speak on Business Problems in War Time.

80,502 Freight Cars, 633 Locos. Installed in 1941

Class I railroads in 1941 put 80,502 new freight cars in service, the largest number installed in any year since 1929, according to the Association of American Railroads. This was an increase of 14,957 compared with the number of new freight cars put in service in 1940; in 1929, the railroads installed 84,894 new freight cars.

New freight cars installed in 1941 included 44,807 box, 30,938 coal, 1,752 flat, 2,200 refrigerator, 149 stock and 656 miscellaneous cars. Class I railroads on January 1, 1942, had 74,897 new freight cars on order, "the largest number at the beginning of any year since the compilation of these records began 20 years ago." New freight cars on order on January 1, 1941 totaled 35,702. New freight cars on order at the beginning of this year included 46,300 box, 23,638 coal, 1,400 refrigerator, 2,191 flat, 300 stock and 1,068 miscellaneous cars.

New locomotives installed in service in 1941 by the Class I roads totaled 633, of which 161 were steam and 472 were electric and Diesel-electric. This was the largest number put in operation since 1930.

In 1940, there were 419 new locomotives put in service, of which 126 were steam and 293 were electric and Diesel-electric.

New locomotives on order on January 1, 1942 totaled 546, which included 258 steam and 288 electric and Diesel-electric. On January 1, 1941, there were 206 on order, of which 115 were steam and 91 were electric and Diesel.

New Hours for the I. C. C.

The Interstate Commerce Commission announced this week that effective January 26, it would begin operating under a new schedule of hours. Daily, the commission will open at 8:30 a. m. and close at 5:15 p. m., while on Saturday the new hours will be 8:30 a. m. and 12:30 p. m. These new hours contrast with the present 9:15 a. m. opening and the 4:45 p. m. closing. This action is being taken to bring the commission in line with many other government bureaus which have added an hour to their working day.

Beginning January 26 the commission will issue press releases at 9:30 a. m., 12 noon, and 4 p. m. daily instead of the present schedule of 10 a. m., 12 noon, and 3:30 p. m.; while on Saturday the release times will be at 9:30 a. m., and 12 noon instead of the present 10 a. m. and 12 noon.

Emergency Truck Powers for I. C. C. in War Powers Bill

The Interstate Commerce Commission would obtain emergency powers over motor carriers similar to those which it has over railroads under a supplemental war powers bill which has been introduced in the Senate by Senator Van Nuys, Democrat of Indiana. It is S. 2208, "a bill to further expedite the prosecution of the war"; and a companion measure (H. R. 6403) was later introduced in the House by Representative Summers, Democrat of Texas. The commission has recommended that it be given such powers in its last three annual reports.

Other sections of the bill would strengthen the war powers of the President with respect to the acquisition of property; provide maximum penalties of a $10,000 fine or a year's imprisonment, or both, for violators of priority regulations; and extend for the duration of the war the 1941 act which authorizes vessels of Canadian registry to transport ore between United States ports on the Great Lakes.

E. I. Lewis on Anthracite Study Board

E. I. Lewis, director of the Interstate Commerce Commission's Bureau of Valuation and a former member of the commission, has been appointed by President Roosevelt to a seven-member committee which will investigate ways and means of improving economic conditions in the anthracite coal-mining regions. The legislation calling for the investigation stipulated that the committee should consist of two senators appointed by the president of the Senate, two representatives appointed by the speaker of the House, and three others appointed by the President.

The Presidential appointees were required to be employees of the I. C. C., the Bureau of Mines, Department of the Interior, and the National Resources Planning Board. In addition to Mr. Lewis, the President has named R. R. Sayers, director of the Bureau of Mines, and Ralph J. Watkins, assistant director of the Resources Board. Congressional members are Senators Guffey, Democrat, and Davis, Republican, and Representatives Boland, Democrat, and Fenton, Republican, all of Pennsylvania.

N. R. A. A. Moves Exhibit to Palmer House

Following the transfer of its annual exhibit from the International Amphitheatre at the Union Stock Yards, Chicago, to the 122nd Field Artillery Armory, the National Railway Appliances Association has been advised that this armory is now desired by the Navy. The N. R. A. A. has arranged, therefore, to present its thirty-first annual exhibition as a "token show" in the exhibition hall in the Palmer House adjacent to the meeting rooms of the American Railway Engineering Association. While these facilities will not permit an exhibit of the magnitude of those held previously, it will enable the members of the N. R. A. A. to maintain the continuity of contact with the members of the A. R. E. A. and to continue the other functions of Engineering Week. Exhibitors and others can secure full details regarding the exhibition plans from Charles H. White, secretary of the N. R. A. A. (Industrial Brownhoist Corporation), 208 South LaSalle street, Chicago).

Amendments to Tire-Rationing Order

Amendments to the recent order restricting sales of tires and to the tire-rationing regulations issued in connection therewith have been announced by Administrator Leon Henderson of the Office of Price Administration.

One of the amendments, which applies to Supplementary Order M-15-c of the Office of Production Management, modifies the prohibition on sales of 6- and 8-ply in all popular passenger car models and light truck sizes and imposes full rationing restrictions on truck tires for vehicles 10 years old or more. "Eligible" users of light truck tires, according to the amendment, now can buy any ply of tire if they can obtain the required certificate from their rationing board. Formerly, only 4-ply tires could be purchased by light truck operators. By subjecting tires of sizes used by trucks 10 years old or more to the full restrictions of the rationing program, the amendment limits their sale to "eligible" users only. These "obsolete" sizes previously were under more moderate restrictions.

The amendment to the rationing regulations provides that the word "truck" for the purpose of the tire rationing order and regulations means "any vehicle designed for use on the highways to carry freight, including raw materials, semi-finished goods and finished products, farm products and foods." In the original regulations the words "designed for use on the highways" were not used in defining trucks; and inquiries had come to OPA from industrial plants asking whether transations in new tires and tubes used on special apparatus operated on their properties were restricted. The amendment is expected to clarify that problem.

Price Ceiling Placed on Machine Tools

New machine tools are brought under a price ceiling at the levels of October 1, 1941, in a new schedule announced on January 21, by Leon Henderson, administrator of the Office of Price Administration.

Defining machine tools as "all machines for the cutting, abrading, shaping, and forming of metals," the new schedule covers, in addition to lathes, planers, milling machines, etc., such items as metal-working presses.

Mr. Henderson ascribed the need for a price ceiling over new machine tools to the unbalanced situation with regard to production and demand. "Under the stimulus of British requirements and the needs of our own defense program, the machine tool industry received hundreds of millions of dollars worth of orders," said the OPA administrator. "Despite greatly expanded output, the backlogs of machine tool orders have continued to grow. The defense program has been superseded by a tremendous war program that will further increase demands for new machine tools. The threat to price stability under these circumstances is obvious and must be headed off."

T. P. & W. Wins Injunction

A temporary injunction enjoining the Brotherhood of Railroad Trainmen and the Brotherhood of Firemen & Enginemen from any violence in its strike against the Toledo, Peoria & Western, was issued by the federal court at Peoria, Ill., on January 19. The order, which follows a nine-day hearing on the application of the railroad, limits the number of pickets to seven at each of four points of entrance to the company's property in Peoria, and replaces a restraining order which had been in effect and which had limited the number of pickets to three but had not set restrictions on the places of picketing. It was further ordered that pickets must be unarmed and must not carry clubs or other instruments of violence.

In explaining the reason for the injunction, the order stated that if the writ were not granted, damage to the plaintiff's property and interference with the movement of interstate commerce might result. It said further that there is no adequate remedy at law, public officers being unwilling or unable to furnish adequate protection.

On February 2, three officers of the railroad will be arranged in the district court on charges of violating the Railway Labor Act by attempting to prevent the organization of employees.

In the controversy which resulted in the calling of a strike on December 28, the brotherhoods have insisted that the matter be arbitrated while the management has sought the appointment of an emergency board. On January 20, the United States conciliation service of the Department of

Labor sought to terminate the strike by requesting company and brotherhood representatives to meet before a conciliation panel in Peoria on January 23, to make further efforts to arrive at a mutually satisfactory settlement through mediation.

Senate Refuses to Halt Decentralization

The Senate last week refused to go along with current Congressional attempts to stop the process of decentralization of government agencies by moving them to various cities outside of Washington. By a vote of 33 to 26, with 37 senators not voting, the Senate defeated a resolution offered by Senator McCarran, Democrat of Nevada, which declared that it was the sense of the Senate that before taking any further steps looking to the removal of any agency from Washington, the Director of the Budget submit a report to the Senate giving full information as to the reason for the issuance of any order of removal, the statutory authority on which it was based, and the facts in connection with each such agency directed to move, and that execution of any such order be stayed until Congress should have made inquiry into the reasons therefor, pursuant to the resolution.

Meanwhile, both President Roosevelt and Director of the Budget Smith have declared that the population of wartime Washington will have to be greatly increased with the result that many government workers will have to be housed in other cities.

October Bus Revenues 41.8 Per Cent Above 1940

Class I motor carriers of passengers reported October, 1941, revenues of $13,637,001 as compared with $9,613,834 in October, 1940, an increase of 41.8 per cent, according to the latest compilation prepared by the Interstate Commerce Commission's Bureau of Statistics from 145 reports representing 146 bus operators. Passengers carried increased 38.8 per cent, from 13,402,175 to 18,596,017.

	Passenger revenue		Passengers carried	
	October 1941	October 1940	October 1941	October 1940
New England Region	$551,858	$466,349	1,281,493	999,608
Middle Atlantic Region	1,611,730	1,374,082	3,271,094	2,718,549
Central Region	2,280,975	1,770,446	3,482,098	2,779,648
Southern Region	3,592,511	2,270,057	4,605,969	2,973,147
Northwestern Region	442,948	354,609	352,563	302,956
Mid Western Region	1,136,753	807,667	779,831	574,823
Southwestern Region	2,063,502	1,198,579	2,397,112	1,355,565
Rocky Mountain Region	126,867	94,996	88,864	74,175
Pacific Region	1,829,857	1,277,049	2,336,993	1,623,704

The breakdown by regions of the bus revenue and traffic figures, which exclude data on charter or special party service, is given in the accompanying table.

Express Agency Gets Part of Rate Increases Sought

Railway Express Agency tariffs publishing an emergency charge of 10 cents per less-carload shipment of one or more packages moving at first, second, and third class rates, and multiples thereof, and on l. c. l. shipments of money, became effective on January 20 when the Interstate Commerce Commission voted not to suspend the schedules insofar as they involved the foregoing. Suspended from January 20 until August 20 and set for investigation in I. & S. Docket No. 5100 are the R. E. A. schedules insofar as they proposed emergency charges on other traffic moving on l. c. l. commodity rates.

At the same time the commission modified outstanding orders and granted the necessary fourth-section relief to permit the authorized increases to be made effective. The R. E. A. move for rate increases following the December wage adjustments took the form of an application for the necessary fourth-section relief and modification of outstanding orders. Thus, at the St. Louis hearing on the application (reported in the *Railway Age* of January 17, page 212), Acting I. C. C. Chairman Clyde B. Aitchison and Commissioner Walter M. W. Splawn sat as a board of suspension to consider protests and determine whether the tariffs should be suspended.

Urges Greater Use of Tank Cars

Oil companies operating on the east coast and in the Pacific Northwest have been called upon by the Office of Petroleum Coordinator to intensify their use of railroad tank cars as a means of transporting petroleum products to the two areas.

Tanker sinkings and the hazards of war have interrupted normal shipment of petroleum and its products on both coasts, it was pointed out. During recent weeks, the trend of petroleum stocks in the 17 Atlantic Seaboard states has been downward. The same, it was declared, has been true for the Pacific Northwest, which is almost completely dependent for its petroleum supplies upon movement by tanker from Southern California. In addition, tankers have been diverted from their normal runs to go into military service on supply lines that now reach into every ocean, thus further cutting down the amount of ocean transportation available for hauling petroleum in the ordinary course of business.

The direction to oil companies to use tank cars to the greatest possible extent, the OPC announcement said, was issued because rail transportation is now the sole alternative to the tanker hauls from the Gulf to east coast ports. Coordinator Ickes also asserted that he and a group of oil companies proposed last summer that a pipe line be built to supply the east coast from Texas, but that that proposal was criticized as unnecessary and the project was refused approval.

The directions to the oil companies to increase tank car movement was contained in telegrams sent out by Deputy Petroleum Coordinator Ralph K. Davies. Sending of the telegrams followed conferences by officials of the Petroleum Coordinator's Office with J. J. Pelley, president of the Association of American Railroads, who was asked to furnish information as to tank car availabilities. On the basis of his report that cars were available, the oil companies were asked to act promptly.

"Barring" Cost Not Chargeable to Railroad

When railroad cars are shifted at shipside through "barring" by stevedore's crews for their own convenience, the cost thereof is not properly chargeable to the railroad delivering the cars. So ruled Judge W. C. Calvin in the federal district court at Baltimore, Md., recently in a case involving the Pennsylvania. The ruling is of considerable interest, inasmuch as similar controversies arise at other ports and some 30 similar suits are pending in the federal court at Baltimore alone.

The plaintiff, Jarka Corporation of Baltimore, stevedores, brought civil action against the railroad to recover one dollar for each occasion on which stevedores moved cars on the railroad docks by pinch bars—a total of almost $6,000—claiming that shifting of the cars for access to ship's tackle was an obligation of the railroad. The defendant pointed out, however, that it had originally spotted the cars where instructed and that they were later shifted individually for plaintiff's convenience. It also asserted that it had, in previous years, furnished crews to shift the cars individually, but that the stevedore firm had taken over this work with its own employees, complaining that the railroad employees were inefficient and caused delays. W. F. Cousins, assistant general solicitor, represented the railroad, together with outside counsel.

Rivers and Harbors Bill to Be Pared Down

President Roosevelt revealed at his January 20 press conference that he is having the billion-dollar rivers and harbors bill resurveyed for the purpose of determining which of the projects are of immediate defense value with the thought of paring down the measure to include only such projects. Later, perhaps, he would have the Congress pass a supplemental rivers and harbors bill with the remaining items included.

Mr. Roosevelt told his hearers that the country, including the editorial writers on newspapers, is not aware of the difference between an appropriation and an authorization bill. After declaring that there is a world of difference between the two, the President went on to say that he had decided that so long as such a misconception of the rivers and harbors bill prevails, he is willing to leave out all projects not in the category of immediate defense needs. Experts, he said, will make the determination of what constitutes a defense project.

Mr. Roosevelt would not comment on any of the projects in the bill, one of which is the highly-controversial St. Lawrence seaway and power project. However, Con-

gressional leaders who met with the President this week felt that that project would be included in the defense category. Representative Mansfield, chairman of the House rivers and harbors committee, met with the President and his Congressional leaders for their regular weekly conference on January 19.

I. C. C. Permits Pipe Lines to Begin Operations

The Interstate Commerce Commission has issued two orders, the effect of which is to permit the immediate operation of two new pipe lines in the southeast, the Southeastern Pipe Line and the Plantation Pipe Line. In one case, that of Southeastern, the full commission lifted the suspension, thus permitting the initial pipeline proportional tariffs to go into effect, but continuing the investigation of the rates; while in the Plantation case the suspension was also lifted and the proceeding discontinued.

In both cases the commission suspended the initial tariffs after the railroads in the affected area through J. G. Kerr, chairman of the Southern Freight Association, had protested that the rates proposed by the pipe lines were unlawfully low and out of line with pipe line rates prescribed by the commission in other parts of the country.

The pipe line companies declared that they were willing to have the commission investigate their rates, but they insisted that the suspensions be lifted so that they could begin to carry oil in the southeastern states. They pointed to the fact that there is a shortage of tankers on the east coast and that these lines had been built with the express thought in mind of easing this oil situation. They also contended that the rates prescribed for pipe lines in other parts of the country could not necessarily be used as a standard by which to judge the rates in the southeastern states.

Priorities Established for Air Travel

The establishment of passenger and cargo priorities for air transportation was announced this week by Brig. Gen. Donald R. Connolly, military director of civil aviation. It is understood that the issuance of the formal order merely legalizes a situation which has existed on a voluntary basis for some time, and will have little, if any, effect on air transportation.

It was further pointed out that in the past the airlines have made every effort to insure that military and government representatives on official business should be given preference over civilians whenever a plane was due to take off with a full load.

In announcing the priorities schedule the War Department said that reservations for seats and cargo space will be made through regularly established airline agencies as in the past but that seats will be assigned "only after those that may be required for official use have been filled."

The following persons are entitled to priority under Brig. Gen. Connolly's order:

1. White House personnel.
2. Army, Navy and Marine Corps ferry command pilots traveling under orders.
3. Personnel of the armed forces and allied military missions whose orders direct travel by air.
4. Army and Navy equipment, ammunition, supplies and material essential to the war program.
5. Personnel of government departments and agencies whose activities are essential to the war effort and whose travel is certified for priority by air.

Although control of air transportation is included in the executive order creating the Office of Defense Transportation, no action has yet been taken by that office to assume jurisdiction; and it is understood that Director Eastman has suggested to various government departments that for the present they carry on their normal functioning in regard to air transportation.

Carriers Get 10 Per Cent Fare Increase

Acting with unusual speed in a major rate case the Interstate Commerce Commission on January 21 disposed of the passenger phase of Ex Parte No. 148 by granting the railroads and certain water carriers authority on 10 days' notice to increase their passenger fares approximately 10 per cent, except for fares specially published for application to members of the military or naval forces of the United States on furlough, and except fares published as extra fares applicable in connection with transportation on particular trains. In granting the carriers the authority which they had asked for, the commission merely issued a formal order but went on to say that a report which will include a statement of facts and conclusions respecting passenger fares and freight rates and charges will be made later.

Testifying at the commission hearings in St. Louis, Dr. Julius H. Parmelee, director of the Bureau of Railway Economics of the Association of American Railroads, said that on the basis of 1941 passenger traffic, the proposed increase would yield $45,741,000.

The commission specifically found that the increase in fares proposed is necessary to enable the carriers to continue to render adequate and efficient railway transportation service during the present emergency, and noted that the increases are necessary to meet, in part, increased operating expenses incurred or to be incurred by the carriers because of the payment by them of (a) increased wages to employees, (b) increased cost of materials and supplies, and (c) additional expenditures to safeguard their properties and operations during the present emergency, details of which, it said, would be set out in the full report on the passenger and freight phases of the case.

The increases sought by the carriers were approved with the provision that where the total increase fares are less than $1 fractions of less than one-half cent shall be dropped and fractions of one-half cent or greater may be increased to the next whole cent, and that where the total increased fares are more than $1 such fares shall end in zero or five, but no more than 2.5 cents shall be added to the present fares as increased by 10 per cent in order to make such total fares end in zero or five.

The commission's order further states that all outstanding orders of the commission, as amended, authorizing or prescribing interstate and intrastate fares, or bases of fares, shall be modified, effective concurrently with the establishment of the increased fares, only to the extent necessary to permit the increase authorized to be added to the interstate and intrastate fares already approved.

* * *

A New York Central Conductor, Car Inspector and Engineer Drop Contributions into a Red Cross Bank at Grand Central Terminal. The Station Is an Important Focal Point in a Campaign to Raise $7,330,000 in Greater New York

The commission retains jurisdiction for the purpose of determining, if need be, the lawfulness of any particular fare or fares, resulting from its action in increasing the passenger rates.

Freight Car Loading

Loadings of revenue freight for the week ended January 17 totaled 811,196 cars, the Association of American Railroads announced on January 22. This was an increase of 74,024 cars, or 10 per cent, above the previous week, an increase 107,699 cars, or 15.3 per cent, above the corresponding week in 1941, and an increase of 164,814 cars, or 25.5 per cent, above the same week in 1940.

As reported in last week's issue, loadings of revenue freight for the week ended January 10 totaled 737,172 cars, and the summary for that week, compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading
For Week Ended Saturday, January 10

Districts	1942	1941	1940
Eastern	154,082	158,167	150,910
Allegheny	161,968	154,334	141,078
Pocahontas	50,236	46,337	46,371
Southern	117,539	112,985	101,992
Northwestern .	85,465	82,210	80,313
Central Western	115,830	104,945	98,828
Southwestern ..	52,052	52,657	48,749
Total Western Districts	253,347	239,812	227,890
Total All Roads	737,172	711,635	668,241
Commodities			
Grain and grain products	35,842	34,421	31,872
Live stock	15,939	13,044	14,220
Coal	166,210	152,352	165,369
Coke	14,197	13,711	12,685
Forest products	35,031	37,724	30,102
Ore	11,818	12,612	9,495
Merchandise l.c.l.	139,844	146,716	144,110
Miscellaneous .	318,291	301,055	260,388
January 10	737,172	711,635	668,241
January 3*	676,534	614,171	592,925
Cumulative Total, 2 Weeks	1,413,706	1,325,806	1,261,166

* Revised.

In Canada.—Carloadings for the week ended January 10 totaled 56,603, as compared to 49,240 in the previous week and 51,703 in the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Jan. 10, 1942	56,603	25,696
Jan. 3, 1942	49,240	25,477
Dec. 27, 1941	45,013	25,964
Jan. 11, 1941	51,703	26,576
Cumulative Totals for Canada:		
Jan. 10, 1942	105,843	51,173
Jan. 11, 1941	94,839	50,834
Jan. 13, 1940	85,433	45,725

Notes Effect of Land-Grant Rate Repeal

The additional cost per annum for railroad mail transportation due to the elimination of land-grant rates under the Transportation Act of 1940 is estimated at $2,585,927 for the fiscal year 1941, according to the annual report of the Postmaster General for the fiscal year ended June 30, 1941. However, it is pointed out, since the increased rates were in effect but part of the year, the additional cost for the fiscal year 1941 was $1,236,539.

The report also discloses that the cost of railroad transportation, including mail messenger service, for the fiscal year 1941 was $113,504,179 as compared with $108,485,034 for the fiscal year 1940.

The report notes that on February 10, 1941, the first experimental highway postal service was established between Washington, D. C., and Harrisonburg, Va. This route is 146 miles in length and serves 22 intermediate post offices. A second experimental highway post office route was established on May 3, 1941, between South Bend, Ind., and Indianapolis, 152 miles. Specially-constructed motor vehicles operating over highways are used in this service, and railway mail clerks are employed in the vehicles and make distribution of mail in a manner similar to that performed in Railway Post Office cars.

"The purpose of this new service," declares the report, "is not to compete in any way with existing railway transportation. Rather, it is to supersede discontinued train service or supplement that which does not adequately supply postal patrons in a given area."

The report of the Postmaster General also notes that during the fiscal year 1941 it was necessary to establish additional star route service in lieu of curtailed railway service resulting in an increase of 8,950 miles in the total length of star routes.

Finds Livestock Pick-up Is Okay

(*Continued from page 266*)

station, the contracts should clearly specify that the payment made by the railroad covers only services performed inside the designated areas, and the truckman should be required in each case to certify that no service has been performed under such compensation outside the designated areas." Also, the decision calls for a reduction from four cents per 100 lb. to three cents in the allowance paid the truckers, because "a restricted amount of compensation tends to confine such truckers' profitable operations to a strictly local terminal area." The three-cents-per-100-lb. allowance paid to farmers who truck their own livestock to the station would remain unchanged. The railroads are given 60 days to amend their schedules and revise their operations and practices along the foregoing lines; or "failing this action, an appropriate order will be entered."

As noted in the aforementioned issue of July 6, 1940, the original report in the proceeding struck down the pick-up tariffs because it "would seem to require resort to legal fiction" to treat "a rural section within a 10-mile radius of a railroad station as a terminal district." Thus it proceeded to find that the motor vehicle operations involved were subject to the Motor Carrier Act, and that they "are being conducted without lawful authority, since no certificate that public convenience and necessity require such operations has been sought or obtained." In the present report, the commission had this to say: "Since our original report, section 202(c) of the Interstate Commerce Act has been supplemented by the addition of two paragraphs to the effect that Part II (the Motor Carrier Act), including provisions as to safety and hours of service, does not apply to truck transportation, performed by or for account of railroads, incident to their 'transfer, collection, or delivery services' within 'terminal areas,' and that such transportation is to be considered as part of railroad transportation subject to Part I. This statute clearly recognizes the fact that railroad collection and delivery practices and customs have been, and will be, affected by modern motor truck operations. . . . Admittedly, it is often difficult to draw a dividing line between the equivalent of line-haul service and railroad terminal pick-up within the meaning of section 202(c) referred to above. Since there are no authoritative definitions of terminal areas, it is necessary that each proceeding requiring a definition of such areas be decided upon its merits and from the standpoint of the particular facts presented."

The latter is what the commission proceeded to do in the present case; and it later said that its findings "are based, in part, on competitive conditions and pick-up operations and practices applicable to livestock in this particular origin territory and are not necessarily applicable to other commodities and to other localities. Practical operating conditions and light traffic density require an exceptionally large terminal area for carload livestock pick-up services."

Commissioner Porter got his dissenting expression under way by asserting that "the foundation stone upon which the Interstate Commerce Act rests is that of absolute equality, not only as to rates, but also as to the conveniences and facilities to shippers in any of the details of the carrying service." He thought the livestock pick-up tariffs violated those principles, and in that connection he called attention to "two striking features" of those tariffs: "The stock must be destined to only a limited number of stations . . ."; and the origins "are limited and no farther from destinations than 250 miles." "The same railroads," Mr. Porter also said, "serve the favored and the unfavored packers. Truck competition is just as severe in the whole of this territory as in the preferred portions. The transportation conditions are similar. The farmers throughout the entire territory are anxious to market their stock at the place of greatest advantage. Why this patent discrimination?"

Dissenter Johnson did not believe that Congress intended that "'terminal areas of transfer, collection, or delivery services' should embrace collection service from farms to railroad stations." Such an extension, he added, "should at least be subject to regulation in the interest of public convenience and necessity."

U. S. Supreme Court Orders

The United States Supreme Court at its January 19 session ruled that the Joliet & Chicago, now operated as a part of the Alton, is subject to federal income tax for the years 1931-34 on sums which the Chicago & Alton paid to the Joliet & Chicago stockholders.

The court, in an opinion by Justice Douglas, found that in 1864 the Joliet & Chicago gave a perpetual lease on its property to the Chicago & Alton, which,

in 1931, became the Alton. In return for the lease the Chicago & Alton agreed to pay the stockholders of the Joliet & Chicago seven per cent annually on their stock and also to pay all taxes due to the United States on account of the dividend.

It was the contention of the Joliet & Chicago that since it no longer controls its property or the dividend payments, it receives no taxable income. The opinion rejected this view, holding that the dividend payments and the payment of federal taxes both constitute income to the Joliet & Chicago.

In two other cases interpreting the so-called "grandfather clause" of the Motor Carrier Act, the court upheld Interstate Commerce Commission orders denying operation certificates to N. E. Rosenblum Truck Lines, J. B. Margolies, doing business as the Manhattan Truck Lines, and Pete Lubetich, operating as the Pacific Refrigerated Motor Lines. In both cases the court held that the companies, whose trucks were being used on July 1, 1935, to handle over-flow freight for a common carrier, were not entitled to automatically receive a certificate of convenience and necessity if they subsequently set up their own independent trucking services over the same routes. The court, in opinions by Justice Murphy, went on to declare that Congress did not intend to confer "multiple" grandfather rights on the basis of a single transportation service to the public. Therefore, the court reasoned, a truck which has operated as a part of a common carrier system on the grandfather date and which subsequently splits off to operate independently cannot come under the benefits of the grandfather clause.

Nelson Announces WPB Organization; OPM Abolished

Reorganization of the government's war production set-up, involving abolition of the Office of Production Management, was announced on January 21 by Donald M. Nelson, chairman of the new War Production Board created by President Roosevelt in an executive order signed January 16. As pointed out in last week's issue where the President announced plans to establish the new set-up were noted, WPB also supplants the Supply Priorities and Allocations Board, although the former SPAB members continue as WPB members.

Questioning of Mr. Nelson at the press conference wherein he announced his new organization brought out the fact that railroad requirements for materials will continue to be handled through a Civilian Supply Division, which, like its OPM predecessor, will be headed by Leon Henderson. However, Mr. Nelson also said that "we must keep the transportation system sound, and moving the goods; if we don't, and transportation breaks down, the program breaks down."

Mr. Nelson's organization has six major divisions. Their names and chiefs are as follows: Purchases, Douglas MacKeachie; Production, W. H. Harrison; Materials, William L. Batt; Industry Operations, J. S. Knowlson; Labor, Sidney Hillman; Civilian Supply, Leon Henderson. Priorities, formerly handled in the OPM Priorities Division, will now be handled in the Division of Industry Operations. Also, Mr. Nelson has set up a Requirements Committee, headed by Mr. Batt, which will handle the allocation of raw materials; and a planning unit which, as the WPB chairman put it, "will think through how the job can be done better."

Mr. Nelson said that he hoped Mr. Hillman, former associate director general of OPM, and William S. Knudsen, former OPM director general, would continue to serve as members of WPB, just as they had with SPAB. President Roosevelt has appointed Mr. Knudsen a lieutenant general in the army where he will have charge of directing and expediting the production involved in the War Department's munitions program, with special emphasis on the production of airplanes, tanks, guns, and ammunition.

A. A. R. Brings Out "School Kit" of Railroad Information

A "kit" of railroad information for teachers to use in getting across the story of railroad transportation to their pupils has been made available by the public relations staff of the Association of American Railroads. The number of requests for booklets, folders, pictures and information generally, received by the Association and member roads from teachers and students, has more than quadrupled in the last four or five years, the supply of which has often been difficult. Now for the first time, the railroads as a group have ready a set of material designed to satisfy virtually every school need.

Packaging of the Teacher's Kit consists of a strong envelope in heavy paper designed as a convenient, permanent file. It contains three items: (1) a 56-page teacher's manual; (2) 56 railroad pictures and, (3) a 72-page booklet entitled "The Stories Behind the Pictures."

Portion of a Picture Which Appears in the A. A. R. "Teacher's Kit"

The teacher's manual contains several pages of suggestions for organizing transportation units in primary and intermediate grades; a chronology of American railroads; an address list of the principal roads of the United States; mileage and other statistical data and a bibliography of story books, text books, reference books, histories, readers, songs, poems and music pertaining to locomotives, trains and railroad transportation generally.

The pictures, each about 10¼ by 7½ in., are in loose form and are printed on one side of the paper so that they may be mounted on cardboard hung on the wall, or passed around among the students. The accompanying booklet contains a full-page story for each of the 56 pictures. These supply the teacher with factual material pertaining to railway history and development, railroad occupations, operations, transportation services and the relation of transportation to basic industries.

Among the main subjects covered by pictures and stories are: "Puffing Billies," "When They Drove the Golden Spike," "Streamline Passenger Trains," "The Locomotive Engineer in the Cab," "Preparing Dinner in the Dining Car Kitchen," "Sightseeing From an Observation Car," "Making Up a Berth in a Sleeping Car," "Sorting Mail in a Post Office Car," "The Roundhouse and the Turntable," "The Train Dispatcher," "The Red Caboose," "Icing the Refrigerator Cars," "Bringing Milk to the City," "Loading Coal Cars at the Mine," and "In a Railroad Office."

The initial distribution of kits was made by the Committee on Public Relations of the Eastern Railroads in Eastern territory and by the A. A. R. in Southern and Western territory. A kit with an introductory letter dated January 2 was sent to state, county, city, and parochial school superintendents and a kit with attached letter dated January 5 was sent to the heads of private, primary and elementary schools and junior high schools, presidents or deans of teachers' colleges and normal schools and editors of educational publications, the letter in each case being addressed to the particular class of addressee.

Subsequent distribution will be in response to written or verbal requests from superintendents, principals, teachers and school librarians. Member railroads will be supplied with any number kits they desire for distribution in their respective territories, requests being handled by J. M. Fitzgerald of the Eastern railroads and the A. A. R. on the geographical basis stated above. As a further precaution against duplications and to enable the public relations staff to tell at a glance what supplemental material, if any, has been supplied to superintendents and teachers, card indexes will be maintained in both the Eastern committee office and the A. A. R., and each request received will be checked against the index before being filled.

Railroad Fans' Magazine Becomes a Monthly

The "Railroad Enthusiast," formerly published quarterly by a nation-wide organization of railroad "fans" called "The

Railroad Enthusiasts, Inc.," starts out the year 1942 as a monthly and with an entirely new editorial staff. Its format has also been substantially changed. The January issue features an illustrated article and roster of locomotives on the Boston & Albany. Issues for non-members cost 15 cents apiece and may be obtained from the new editor, A. O. Wilkins, 163 Essex Street, Saugus, Mass. E. L. Thompson, an employee of the Baltimore & Ohio, was editor of the magazine for the past three years.

Transport Board Outlines Program for Public Aids Study

The Board of Investigation and Research created by the Transportation Act of 1940 has announced a program for the study of public aids to transportation by railway, highway, and waterway. The study which will be under the direction of Burton N. Behling is one of the three specific assignments which the act gave to the board, the others being studies of the relative economy and fitness of rail, motor and water carriers, and of the extent to which taxes are imposed upon carriers.

"Pursuant to this direction," the board's announcement said, "previous studies of public aids will be carefully examined, especially the comprehensive report on this subject issued by the federal co-ordinator in 1940. Data obtained from this and other published reports will be subjected to critical analysis, and will be supplemented by additional information, particularly with reference to recent periods. The cooperation of interested parties will be sought in the collection of data, and full expression of opposing views on controversial issues will be solicited through appropriate procedures as the study progresses.

"An important part of the study will be concerned with the question of what constitutes public aid and with methods of determining the amount of such aid. The investigation of public aids will be closely related to the tax study recently announced by the board. The difficult problem of allocating public aids among joint uses and classes of users will be carefully examined. In so far as possible and to the extent practicable within the time allotted for the study, an effort will be made to subdivide the public aids to each kind of transport by regions, and by distinguishable groups of users. Since it is important as a guide to public policy that the benefits realized or believed to have been realized from public aids be thoroughly analyzed, the projected study, in addition to estimating the extent of the aids, will inquire as fully and as specifically as possible into the benefits. War conditions have emphasized the military importance of transportation to the nation; hence the significance of public aids to transportation in time of war, especially in relation to the supply of services, will be considered."

The board hopes that the report on public aids "will be completed for submission to the President and to Congress during the autumn of the present year." Under the law by which it was created the board will die next September 18, unless its life is extended by Presidential proclamation.

Budd Forecasts Adequate Transportation

Adequate transportation during the war if maximum utilization of facilities is maintained, was forecast by Ralph Budd, president of the Chicago, Burlington & Quincy before the Agricultural Club of the Chicago Agricultural Association at Chicago on January 19. Mr. Budd based his conclusion upon several factors, among which is the fact that, with war and civilian production in full blast during recent months, there has been enough transportation to handle the traffic. Usually, he said, when war materials begin to flow off the production lines, the production of other materials decreases and this may happen in the future. The war period, he continued, will require more transportation than is needed in peace time but in specific industries the requirements will be less. In the building industry, he said, a garage for example, might require 100 tons of steel, which is a small portion of the total tonnage of materials that might be used in its construction. If this amount of steel and a few other items are used in the construction of tanks instead of in the construction of the garage, the result will be a reduction in the total tonnage transported.

The tonnage of agricultural products to be transported in 1942, Mr. Budd asserted, will be greater than in 1941 because of the government's plan to increase the production of these products, especially, corn, livestock, poultry, eggs, cheese and butter, although the acreage of winter wheat for 1942 has been reduced 100,000,000 bushels compared with 1941. The 1942 wheat harvest will not be as large as that of 1941, he said, but there will be a large carry over from 1941 that will have to be moved.

The shortage of rubber, he said, may curtail transportation by highway and may throw a burdensome load upon the railways. If those in charge of the allocation of materials can be made to realize the need for the continuance of highway transportation and will make materials available to the essential users of the highways, this possibility can be avoided, he contended.

The movement of grain on the Great Lakes, he said, may be affected if the transportation requirements of iron ore are increased, because iron ore shipments must have preference. So far, he continued, the performance has been so satisfactory that lake cargo ships have not been called upon to give up grain for iron ore.

The transportation outlook at the present time, he concluded, is better than it was a year ago because the experience during the interim has enabled transportation officers to know what to expect. The practical answer to the rail problem of the future, he said, is to do what has always been done in the past, that is, to provide more cars, locomotives and fixed properties as the need develops. Shipper co-operation is also essential, he said, because without it there will be a shortage of the usage of cars. To carry out its program, the railroad industry must have enough materials so that they can maintain the properties for more intensive use and so that they can add cars and locomotives.

Would Convert Tank Cars to Haul Liquefied Gas

The possibility of converting ordinary railroad tank cars for use in transporting, under pressure, liquefied gases such as the vital iso-butane component of 100-Octane aviation gasoline is being explored by the Office of Petroleum Coordinator, it was announced this week.

Cooperating in the study are the Interstate Commerce Commission, the Association of American Railroads' bureau of explosives, car building companies and tank car owners. The result, according to Petroleum Coordinator Ickes, may be a reshuffling of present car assignments to save both the time that would be required to build new cars and the steel which would have to be expanded for the construction of such equipment.

The announcement goes on to say that the demand for cars in the liquefied gas service has mounted steadily since the entrance of this country into the war. They are needed to haul increasing amounts of iso-butane to 100-Octane plants in connection with the program to quadruple production of this super aviation fuel. Moreover, some of the huge military camps require large quantities of normal butane for heating purposes. Also, many defense plants are using the gas for heat treating of steel and other metals.

Part of the demand for cars, it is felt, can be met by eliminating cross-hauls and back-hauls, by reducing the number of distribution points and by speeding up turnarounds. Action in this direction may be expected, it was said, with a view to handling normal business with fewer cars and freeing immediately for special defense service a number of the right kind of cars.

In connection with the relief which might be obtained by converting cars, the Coordinator's Office has recognized the possibility that existing cars very probably have been built stronger and heavier than actually necessary for the service in which they are now engaged. The preliminary inquiry bears this out. It has developed the definite possibility of converting insulated asphalt or road oil cars for transportation of natural gasoline, and, in turn, converting natural gasoline cars for normal butane service, and possibly, for the hauling of butadiene, an essential ingredient of synthetic rubber. Cars in normal butane and butadiene services would then be released for handling iso-butane. Safety and other regulations, however, prompted the planning of a series of tests of all the various types of cars to determine those which can be converted safely to carry liquefied gases of various pressures.

Three companies will make the tests. From each of several car classifications, they will select those with tanks which are sufficiently heavy to permit higher safety valve settings and on these install the necessary fittings and safety devices needed to make them suitable for handling butane. Upon conversion, trial service certificates will be sought from the Interstate Commerce Commission and test runs made to

determine what series of cars can safely be converted to handle higher pressure gases than those for which constructed.

Railroad Retirement Board Operations in December

Railroad retirement applications continued to decrease in December, 1941, 1,403 applications for employee annuities having been received by the Railroad Retirement Board compared to 1,553 in November, the lowest number received since the enactment of the 1937 act. The total received in the six-month period July-December 1941 was 10,056, 8.8 per cent smaller than for the corresponding period last year.

Benefit payments in December amounted to $10,685,780 on all classes of benefit. This brought the total payments for the first six months of the current fiscal year to $63,106,256, 5.2 per cent more than for the corresponding period last year. Total benefit payments from the beginning of operations through December 1941 were $493,231,890. Employee annuities in force on December 31, 1941, totaled 123,498 with a monthly amount payable of $8,129,205. The average monthly payment on these was $65.82. Pensions in force at the end of December totaled 29,424 with a monthly amount payable of $1,735,449. The average monthly payment was $58.98.

Seasonal unemployment among maintenance of way workers resulted in an increase in December applications and claims under the Railroad Unemployment Insurance Act. The average weekly receipts in December amounted to 4,594 applications and 13,267 claims, an increase over November of about 1,900 for applications and 4,500 for claims. Claims receipts, however, both in November and December 1941 were about 62 per cent lower than in the corresponding months of 1940. Unemployment insurance benefits amounting to $1,019,690 were certified in December on 55,824 claims for the current benefit year. The average benefit on certifications with a maximum of 10 compensable days was $19.89.

Employment service operations were at a peak in December, principally because of the Christmas freight and passenger service demands. Notifications were received of 7,873 openings, of which 5,460 were with railroad employers. Nearly 10,000 workers were referred to available vacancies and 6,268 were placed. More than 70 per cent of the December placements, the Board said, "were in jobs which were expected to last not more than a month." Nearly 4,000 of these were as freight handlers and about 250 as cooks and waiters. The New York office made about 3,700 placements in December, or nearly 60 per cent of the total for the country; 3,300 of these were in temporary jobs, of which almost 3,000 were as freight handlers.

FIRST PRIZE IN A CHRISTMAS WINDOW DISPLAY sponsored by the Fifth Avenue Association, New York, was awarded the Canadian National for its window display on that street. The window scene, showing a typical French Canadian skiing village, was described by the judges as "utterly charming," "most attractive" and "very clever."

Supply Trade

Jerry C. Bloomfield has severed his connection with the Bettendorf Company and has been appointed district representative at Chicago for the **Standard Car Truck Company.**

R. M. Marberry, sales promotion manager of the Timken Silent Automatic division, has been appointed advertising manager of the **Timken-Detroit Axle Company.**

Bennett Burgoon, Jr., formerly mechanical engineer of the Railway Steel Spring division of the American Locomotive Company at Latrobe, Pa., has been appointed representative for the **McKenna Metals Company** at Rockford, Ill.

James H. Shaffer, formerly sales and service engineer with the Ajax Hand Brake Company, has recently joined the **Schaefer Equipment Company** as special representative with headquarters at 2710 Koppers Building, Pittsburgh, Pa.

James S. Anderson is now connected with the New York district sales office of the **Babcock & Wilcox Tube Co.** Mr. Anderson was formerly in the steel and tubes division of the Republic Steel Corporation.

Ralph E. Keller, who has been promoted to sales manager and chief engineer of the **Kalamazoo Railway Supply Company,** as reported in the *Railway Age* of January 10, entered the employ of this company on February 1, 1914. After serving as draftsman, designing engineer and sales engineer he was promoted to chief engineer in June, 1927, and on December 19, 1941, was promoted to chief engineer and sales manager.

Ralph E. Keller

The Baldwin Locomotive Works has announced the appointment of four divisional vice-presidents as follows: **Haldwell S. Colby,** locomotive division; **Frank K. Metzger,** Standard Steel Works division; **Frederick G. Schranz,** Baldwin Southwark division; and **Norris H. Schwenk,** Cramp Brass and Iron Foundries division. The duties of these men will remain substantially the same as in the past. Other appointments in the company's locomotive division include that of **Amos G. Cole** as works manager, and **Lewis W. Metzger** as production manager, reporting to Mr. Colby. **Ralph W. Anderson,** formerly superintendent of motive power for the Chicago, Milwaukee, St. Paul & Pacific, was appointed assistant to Mr. Colby, with particular reference to steam locomotive construction.

The Copperweld Steel Company will open its own Chicago district office at 122 South Michigan avenue, Chicago, on February 2 under the supervision of **W. W. Ege,** who will become the company's western sales manager. Heretofore, Copperweld sales activities in this district, which comprises the states of Kentucky, Indiana, Michigan, Wisconsin, Illinois, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska and Kansas, have been handled by Steel Sales Corporation's Copperweld department in charge of Mr. Ege. Copperweld territorial representatives in the Chicago district will be as follows: **E. G. Elg,** assistant western sales manager, Chicago; **J. P. Gould,** Chicago; **H. V. Rathbun,** Kansas City, Mo.; **A. B. Leach,** St. Louis, Mo.; **R. C. Raasch,** Des Moines, Iowa; and **J. J. Healy,** Minneapolis, Minn.

Otis W. Herring and **William D. Stroud** have joined the staff, as sales engineers, of the Birmingham, Ala., office of **The Okonite Company,** and **L. L'Heureux** and **W. H. Hammond** have been added to the staff at Atlanta, Ga.

Mr. Herring will handle Tennessee and the northern part of Alabama and Mississippi, and will be located in the Okonite officer in the Comer building, Birmingham. He is a graduate of the Georgia School of Technology in electrical engineering, and has had 15 years' experience in sales and construction work with Western Union, Truscon Steel and several other industrial organizations.

Mr. Stroud, also a graduate in electrical engineering from the Georgia School of Technology, was formerly a distribution engineer with the Georgia Power Company. In his new position he will cover Louisiana and the Gulf Coast area of Florida, Alabama and Mississippi. This territory previously was handled by Rhea Lapsley who is now with the U. S. Army Engineers, in which he held a reserve commission. Mr. Stroud will be located at 621 Julia Street, New Orleans, La.

Mr. L'Heureux will handle the Florida territory from his home at 2360 St. Johns avenue, Jacksonville, Fla. He is a graduate of the Georgia School of Technology, has had 16 years' experience in the electric utility field and was formerly district superintendent of the Alabama Power Company, in Jasper, Ala.

Mr. Hammond will be located at 2538 Kenmore avenue, Charlotte, N. C. A graduate electrical engineer of North Carolina State College, he was previously with Crocker-Wheeler Electric Manufacturing Co. and the Copper Wire Engineering Association. He has had 12 years' experience

as a sales and consulting engineer in the electrical field.

OBITUARY

Harry S. Valentine, first vice-president and acting president of the Eppinger & Russel Co., New York, died in that city on January 16.

George H. Goodell, manufacturers' agent at St. Paul, Minn., for the Q. & C. Co., the Cullen-Friestedt Company, the Northwestern Motor Car Company, the National Lock Washer Company, the Edgewater Steel Company, the Standard Car Truck Company and the Standard Railway Equipment Company, died in that city on December 27.

Equipment and Supplies

LOCOMOTIVES

New York Central Inquiring for 25 Steam Locomotives

The New York Central has issued inquiries for a total of 25 steam locomotives of the 4-8-2 type for both the carrier's own use and for the Pittsburgh & Lake Erie. This railroad was reported to be considering the purchase of a large number of steam locomotives in the *Railway Age* of January 10.

THE STONE & WEBSTER Co. has ordered one 80-ton Diesel-electric switching locomotive from the General Electric Company.

THE SANDERSON & PORTER Co. has ordered two 45-ton Diesel-electric switching locomotives from the General Electric Company for use at Pine Bluff, Ark.

THE REPUBLIC STEEL CORPORATION ordered six Diesel-mechanical switching locomotives of 340 hp. each from the Fate-Root-Heath Company during 1941, two of which have not yet been delivered.

FREIGHT CARS

THE ARGENTINE STATE RAILWAYS are inquiring for 50 9,500-gal. tank cars.

THE UNITED STATES NAVY DEPARTMENT has ordered 12 steel flat cars of 50 tons' capacity for service at the Charleston, S. C., navy yard from the American Car & Foundry Co.

THE WABASH has been authorized by the district court to spend $1,315,223 for the maintenance of right of way and additions and betterments. Included are $489,509 for the purchase of new freight cars and the rehabilitation of 150 old ones.

Financial

ATLANTIC COAST LINE.—*New Director.*—Millard F. Jones, executive vice-president of the Planters National Bank & Trust Co., Rocky Mount, N. C., has been elected a director of this road, succeeding Frank K. Borden of Goldsboro, N. C.

ATLANTIC COAST LINE.—*Abandonment.*—This company has received Interstate Commerce Commission approval of its plan to abandon a line extending from Bloomfield, Fla., to the end of the track at Yalaha, one mile.

At the same time Division 4 has also permitted this company to abandon a line extending in a northeasterly direction from a point east of Altoona, Fla., to the end of the line at Astor, 17 miles.

BALTIMORE & OHIO.—*New Director.*—H. I. Young, president, American Zinc, Lead & Smelting Co., was elected a director of this road at a meeting of its board of directors on January 21. He succeeds C. A. de Gersdorff.

BALTIMORE & OHIO.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon the portion of a branch line extending in a southwesterly direction from Bendale, W. Va., to Burnsville, 23.4 miles.

BOSTON & MAINE.—*Operation.*—This company has been authorized to operate under trackage rights over a line of the Central Vermont between Norwottuck, Mass., and Canal Junction, 8.4 miles.

CENTRAL OF GEORGIA.—*Trustee Qualified.*—M. P. Callaway, whose appointment as co-trustee of the Central of Georgia was announced in the *Railway Age* of November 22, 1941, page 897, was duly qualified in this post on January 10. All officers, agents, attorneys and physicians, who were in the employ of the late H. D. Pollard (whose death was reported in the *Railway Age* of January 10, page 176) have been appointed to the same office and employment under Mr. Callaway. Mr. Callaway resigned as vice-president of the Guaranty Trust Company, New York, on December 31, and will assume direction of the finances and reorganization of the road. Federal Judge A. B. Lovett, whom Mr. Callaway succeeded as co-trustee, is expected to appoint a successor to Mr. Pollard as operating trustee of the property in the near future.

CHICAGO & NORTH WESTERN.—*Abandonment.*—The state of Nebraska and the Nebraska State Railway Commission have asked the Interstate Commerce Commission to reopen the record in Finance Docket No. 13172 wherein this company was recently authorized to abandon a branch line extending from Linwood, Nebr., to Hastings, 102.6 miles. The protestants claim that the changed situation due to the outbreak of hostilities with Germany, Japan, and Italy, and the rationing of tires has made it imperative that this line continue in operation. They also suggest that the line could be economically operated with lighter equipment.

LOUISVILLE & NASHVILLE.—*Trackage Rights.*—This company has asked the Interstate Commerce Commission for authority to operate under trackage rights over a line of the Southern from Sheffield, Ala., to Florence, 2.9 miles.

MINNEAPOLIS & ST. LOUIS.—*Withdrawal of Collateral.*—This company has asked the Interstate Commerce Commission to amend its order of March 4, 1941, approving a loan to be made to it by the Reconstruction Finance Corporation in the sum of $4,000,000, to permit the withdrawal of 1,036 shares of capital stock of the St. Paul Union Depot and seven shares of capital stock of the Keithsburg Bridge from the securities to be pledged under the first mortgage securing the RFC loan.

NEW YORK CENTRAL.—*Joint Operation.*—This company has asked the Interstate Commerce Commission for authority to operate over the Tioga, a subsidiary of the Erie, between Lawrenceville, Pa., and Morris Run, 29.4 miles. The new agreement will continue in operation an existing agreement which has been in force since February 1, 1883.

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization.*—This company, the executive committee representing the insurance group and the committee representing the mutual savings bank group have asked the Interstate Commerce Commission to reopen this road's reorganization case in the light of the decision in December of the United States District Court for Connecticut "that the acquisition of the properties of the Old Colony and the Boston & Providence as proposed by the commission discriminates against New Haven creditors and that the plan must be disapproved."

Thus, after almost seven years of litigation, the New Haven reorganization plan comes back to the commission for further action.

NORTHERN PACIFIC.—*Equipment Trust Certificates.*—This company has asked the Interstate Commerce Commission for authority to assume liability for $1,800,000 of equipment trust certificates, maturing in 10 equal annual installments of $180,000 on February 16, in each of the years from 1943 to 1952, inclusive. The proceeds will be used as part of the purchase price of new equipment costing a total of $2,275,000 and consisting of 500 70-ton, all-steel, Hart Selective ballast cars; four 1,000 h.p., type 0-4-4-0 Diesel-electric switching locomotives; and two 660 h.p., type 0-4-4-0 Diesel-electric switching locomotives.

The road awarded the issue to Salomon Brothers & Hutzler on January 21, on a bid of 99.069 for 2½s, representing an interest cost to the carrier of 2.31. The certificates, which mature in ten equal annual installments, were re-offered publicly at prices to yield 0.85 to 2.50, according to maturity.

NEW YORK, ONTARIO & WESTERN.—*Purchase of Utica, Clinton & Binghamton.*—Federal Judge Murray Hulbert, at New York, authorized the trustee of the New

York, Ontario & Western, on January 16, to acquire the railroad properties of the Utica, Clinton & Binghamton for $250,000. Sale had already been negotiated with the stockholders of the latter and awaited only court approval. Purchase price will be paid in ten annual installments of $25,000 each, which is identical with the annual rental paid for the right to operate the U., C. & B. since 1937. Previous to that year the rental had been higher.

The U., C. & B., a 31-mi. line between Randallsville, N. Y., and Utica, was opened in 1872. In 1889 it was leased in perpetuity to the Delaware & Hudson, which in turn sub-leased it the following year to the N. Y. O. & W. The latter has operated it ever since as an integral part of its system. The D. & H. was obliged to pay principal and interest on $800,000 outstanding first mortgage 5s of the leased line on July 1, 1939, in accordance with guaranty provisions in the lease.

RIO GRANDE SOUTHERN.—*RFC Loan.*—The receiver of this company has asked the Interstate Commerce Commission to approve a $50,000 loan from the Reconstruction Finance Corporation, the proceeds to be used to rehabilitate the property. A previous request by a former receiver of the company was denied by the commission.

SOUTHERN. —*Joint Operation.* — This company and the Alabama Great Southern have asked the Interstate Commerce Commission for authority to jointly use portions of their tracks between Wauhatchie, Tenn., and Chattanooga. Under the proposed arrangement, the Southern will operate over the A. G. S. between Wauhatchie, Tenn., and the Memphis-Chattanooga Junction, 2.2. miles; while the A. G. S. will use the tracks of the Southern from Memphis-Chattanooga Junction, Tenn., to Chattanooga, 2.8 miles.

SOUTHERN PACIFIC.—*Equipment Trust Certificates.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to assume liability for $4,430,000 of 2½ per cent equipment trust certificates, maturing in 10 equal annual installments of $443,000 on January 1, in each of the years from 1943 to 1952, inclusive. The issue has been sold at par and accrued dividends, plus a premium of $100 for the entire issue, to the First Boston Corporation, acting on behalf of itself and Harriman Ripley & Co., Inc., F. S. Moseley & Co., and Kidder, Peabody & Co.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—*Pledge and Extension of Bonds.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to pledge with the corporate trustee under its general mortgage dated December 16, 1902, and, subject to such pledge, to also pledge with the corporate trustee under its refunding and improvement mortgage dated April 1, 1922, $2,000,000 of St. Louis Merchants Bridge first mortgage six per cent bonds, and $3,500,000 of St. Louis Merchants Bridge Terminal first mortgage five per cent bonds.

At the same time Division 4 authorized the St. Louis Merchants Bridge Terminal to extend to July 1, 1974, the maturity date of $3,500,000 of its first mortgage five per cent bonds. In two other decisions handed down at the same time the St. Louis Terminal was authorized to extend from January 1, 1933, to January 1, 1953, the maturity date of $1,500,000 of its first mortgage six per cent 40-year bonds; and the St. Louis Merchants Bridge has been permitted to extend to July 1, 1974, the maturity date of $2,000,000 of its first mortgage six per cent bonds.

Division 4 has also modified its order of August 15, 1930, so as to permit the Terminal Railroad Association of St. Louis to use the proceeds of $3,500,000 of general mortgage refunding four per cent, sinking fund gold bonds to purchase or pay a like principal amount of St. Louis Merchants Bridge Terminal first mortgage five per cent bonds.

Division 4 has further modified its order of January 24, 1929, so as to permit the Terminal Railroad Association of St. Louis to use the proceeds of certain of its general mortgage, refunding four per cent, sinking fund gold bonds to purchase or pay $2,000,000 of St. Louis Merchants Bridge first mortgage six per cent bonds.

Dividends Declared

Cleveland, Cincinnati, Chicago & St. Louis.—Common, $5.00, semi-annually; 5 Per Cent Preferred, $1.25, quarterly, both payable January 31 to holders of record January 21.

Mine Hill & Schuylkill Haven.—$1.00, semi-annually, payable February 2 to holders of record January 15.

North Carolina.—7 Per Cent Guaranteed, $3.50, semi-annually, payable February 2 to holders of record January 21.

Pittsburgh, Bessemer & Lake Erie.—75¢, semi-annually, payable April 1 to holders of record March 14.

Rutland & Whitehall.—Irregular, $1.15, payable February 16 to holders of record January 31.

Wheeling & Lake Erie.—Prior Lien.—$1.00, quarterly; Cumulative Preferred, $1.37½, quarterly, both payable February 1 to holders of record January 26.

Average Prices of Stocks and Bonds

	Jan. 20	Last week	Last year
Average price of 20 representative railway stocks..	29.53	28.99	30.41
Average price of 20 representative railway bonds..	66.08	65.74	63.81

Construction

GREAT NORTHERN.—Coal handling equipment for installation in a new coaling station to be built by the railroad at Park River, N. D., has been purchased from the Ross & White Co., Chicago.

NEW YORK, CHICAGO & ST. LOUIS.—The Pennsylvania Public Utility Commission has approved plans of this company calling for the construction of three tracks, which will be in addition to one now in operation, at grade across Franklin avenue in Erie, Pa., between the company's existing main track and tracks of the New York Central. The cost of constructing the additional track is estimated at $51,000.

VIRGINIAN.—This company has awarded a contract for construction to subgrade for additional tracks on its Guyandot River branch at Elmore, W. Va., to the Walton Sudduth Company, Bluefield, W. Va.

Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

George P. Orlady, general solicitor of the Lehigh & New England, with headquarters at Philadelphia, Pa., has resigned. All communications heretofore addressed to his office should be forwarded to William Jay Turner, vice-president and general counsel, pending appointment of Mr. Orlady's successor.

M. Cayley Smith, Jr., whose promotion to general attorney on the Erie, with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of January 17, was born at Goshen, N. Y., on May 30, 1909, and graduated from Hamilton College in 1931 and Columbia Law School in 1934. During the summer of 1932 he engaged in statistical and other work for the Western Railroads' Committee on Public Relations at Chicago, and after graduation from law school he became associated with

M. Cayley Smith, Jr.

the law firm of Miller, Owen, Otis & Bailly at New York. Mr. Smith entered railway service on August 15, 1937, as an attorney for the Erie at Cleveland and on January 1, 1940, was promoted to assistant general attorney, the position he held until his recent promotion, which was effective December 22. Mr. Smith has been engaged recently on work concerning the reorganization of the Erie. While apparently a newcomer in the railway field, Mr. Smith has been an ardent student of railroads and railroad affairs ever since he was a boy. He was writing and getting published articles on transportation subjects when he was still in high school. He grew up on the line of the Erie, has always been especially interested in it, and his advancement is the realization of an almost life-long ambition to become an officer of it.

EXECUTIVE

J. H. Luce, vice-president of the Mississippi Export Railroad, has been elected president, with headquarters as before at

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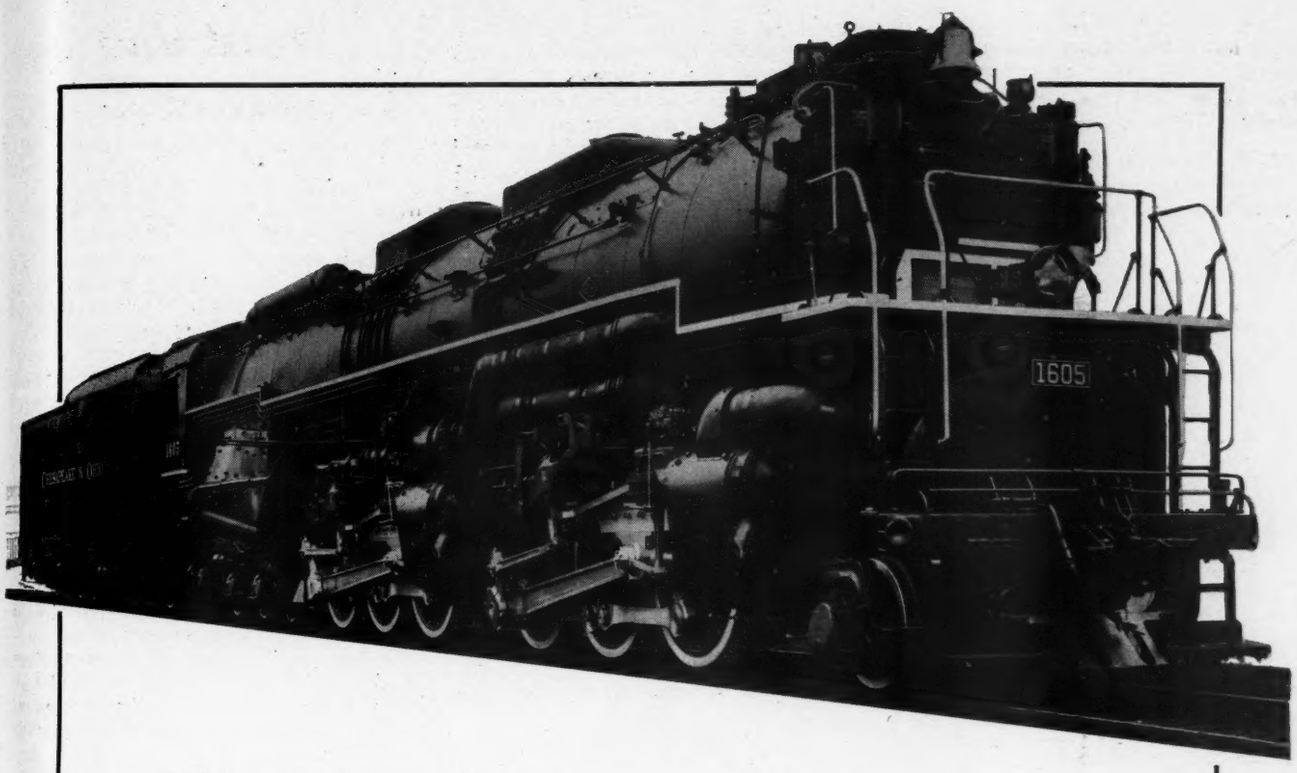

Lima-built Allegheny Type Locomotives Speed Up Freight Transportation On C & O

Ten of these "Allegheny Type" 2-6-6-6 articulated locomotives are now being used by the Chesapeake & Ohio to speed up freight transportation. This new design of super-power steam locomotive, which was recently delivered by Lima to the C & O, is to be used to augment present power in keeping with the railroad's progressive policy of up-to-date power to stay abreast of traffic demands.

In addition to these ten locomotives now in service the Chesapeake & Ohio has placed a duplicate order for ten more 2-6-6-6 Allegheny Type locomotives that are now being built by the Lima Locomotive Works.

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

LIMA LOCOMOTIVE WORKS INCORPORATED

Moss Point, Miss., succeeding **R. J. Cullen,** who has resigned. **H. F. Gautier,** of Pascagoula, Miss., has been elected vice-president, replacing Mr. Luce.

L. L. Babcock, executive secretary to the president and general manager of the Kentucky & Indiana Terminal, has been

L. L. Babcock

promoted to assistant to the president and general manager, with headquarters as before at Louisville, Ky. Mr. Babcock was born at Louisville on May 6, 1893, and entered the service of the Kentucky & Indiana Terminal on October 15, 1910, serving in various clerical positions in the transportation and accounting departments until February 2, 1918, when he was appointed stenographer in the office of the master mechanic. On September 15, 1924, he was promoted to chief clerk to the manager and chief engineer and on October 17, 1934, he was advanced to executive secretary to the vice-president and general manager. On October 13, 1938, Mr. Babcock was promoted to executive secretary to the president and general manager, which position he held until his recent promotion, effective January 12.

OPERATING

E. H. Goodrich, general agent for the Railway Express Agency at Jacksonville, Fla., has been appointed superintendent of the City division, the general agency being discontinued.

C. J. Henry, division engineer of the Panhandle division of the Pennsylvania, with headquarters at Pittsburgh, Pa., has been promoted to superintendent of the Toledo division, with headquarters at Toledo, Ohio, succeeding **C. F. Lingenfelter,** who has been granted a leave of absence.

L. A. Quaney, general transportation inspector on the Eastern district, Eastern lines, of the Atchison, Topeka & Santa Fe at Topeka, Kan., has been promoted to trainmaster on the Southern Kansas division at Chanute, Kan., succeeding **L. V. Lienhard,** who has been transferred to Newton, Kan., relieving **H. G. Focht,** assigned to other duties.

Grover C. Mathews, general agent for the Railway Express Agency, Inc., at Dallas, Tex., has been promoted to superintendent of the Oklahoma division, with headquarters at Oklahoma City, Okla., succeeding **Allen F. Jones,** retired. **F. H. Tudor,** chief clerk to the general manager at Houston, Tex., has been promoted to general agent at Dallas, Tex., relieving Mr. Mathews. **L. E. Gehan,** general agent at Seattle, Wash., has been transferred to Ft. Worth, Tex., replacing **R. C. Hardin,** who has been transferred to Houston. Mr. Hardin succeeds **H. J. Shannon,** who, in turn, has been transferred to Seattle, relieving Mr. Gehan.

R. Melvin Stone, whose promotion to superintendent of telegraph of the St. Louis Southwestern, with headquarters at Tyler, Tex., was reported in the *Railway Age* of January 17, was born at Tyler on April 15, 1904, and entered railway service on November 4, 1919, as an office boy in the office of the superintendent of transportation of the Cotton Belt at Tyler. On April 10, 1920, he was transferred to the telegraph department as a messenger boy and on October 11, 1920, he was promoted to telegraph operator, working at various way stations, relay and dispatchers' offices. Mr.

R. Melvin Stone

Stone was advanced to chief clerk to the superintendent of telegraph at Tyler on November 15, 1928, which position he held until his recent promotion, effective January 1.

Ernest E. Foulks, whose promotion to superintendent of the Albuquerque division of the Atchison, Topeka & Santa Fe, with headquarters at Winslow, Ariz., was reported in the *Railway Age* of January 17, was born at Alpine, Tex., on August 22, 1903, and entered railway service on June 10, 1920, as a clerk on the Rio Grande division of the Santa Fe, later serving also as a telegraph operator and cashier. In 1922 he was appointed a stenographer in the superintendent's office at San Bernardino, Cal., and in 1923 he was promoted to secretary to the superintendent at Winslow, Ariz. From 1926 to 1934, Mr. Foulks served as operator, dispatcher, night chief dispatcher and chief dispatcher at Winslow and on June 4, 1934, he was appointed transportation inspector at Los Angeles, Cal. On July 10, 1935, he was promoted to trainmaster at Winslow and on January 1, 1940, he was promoted to assistant superintendent at Phoenix, Ariz. Mr. Foulks was transferred to Winslow on August 10, 1941, where he remained until his recent promotion effective January 1.

T. S. Sullivan, assistant superintendent on the Canadian National at Port Arthur, Ont., has been promoted to superintendent of transportation of the Saskatchewan district, with headquarters at Saskatoon, Sask., succeeding **M. D. Thompson,** who has been appointed superintendent of the Port Arthur division, with headquarters at Port Arthur, Ont., relieving **David William Steeper,** who has retired. **A. R. Banner,** assistant superintendent at Portage la Prairie, Man., has been transferred to Port Arthur, replacing Mr. Sullivan.

Mr. Steeper was born at Markham, Ont., on December 11, 1876, and entered railway service on January 11, 1892, as a brakeman on the Grand Trunk (now part of the Canadian National). From September, 1896, to October 22, 1907, he served as a brakeman, conductor, and yardmaster on various roads, including the Great Northern; the Chicago Great Western; the Minneapolis, St. Paul & Sault Ste Marie; the Northern Pacific; the Southern Pacific; the Atchison, Topeka & Santa Fe and the Canadian Northern (now part of the Canadian National). On the latter date he became a brakeman on the Grand Trunk Pacific (now part of the Canadian National) and was later advanced to conductor and trainmaster. In July, 1917, he was promoted to assistant superintendent at Graham, Ont., and later served in that capacity at Sioux Lookout, Ont., and Winnipeg, Man. In September, 1921, he was promoted to superintendent, with headquarters at Edson, Alta., and was transferred to Melville, Sask., in 1923. Mr. Steeper was transferred to Saskatoon in 1930 and to Port Arthur in 1931.

James C. Bailey, assistant general superintendent of the Bessemer & Lake Erie, has been promoted to general superintendent, with headquarters as before at Greenville, Pa., succeeding **Edwin J. McGeary,** deceased. Mr. Bailey was born at Meadville, Pa., on June 9, 1883, and en-

James C. Bailey

tered railroad service on February 27, 1902, as telegraph operator for the Bessemer & Lake Erie. He was appointed clerk on May 1, 1904; timekeeper on November 6, 1906, and car service agent on November 1, 1917. Mr. Bailey served as assistant to

general superintendent from July 1, 1933, to February 1, 1940, when he was promoted to assistant general superintendent, the position he held until his recent appointment.

Newton L. Greer, whose promotion to superintendent of the Dakota division of the Great Northern, with headquarters

Newton L. Greer

at Grand Forks, N. D., was reported in the *Railway Age* of January 17, was born at Le Mars, Iowa, on October 10, 1886, and entered railway service in 1902 as a baggageman on the Illinois Central at Le Mars, later becoming a telegrapher. In 1903 he went with the Great Northern as a telegrapher and agent in North Dakota and in 1904 he resigned to become cashier in a bank at Churches Ferry, N. D. In 1908 he returned to the Great Northern, serving as telegrapher and agent at various points and in 1916 he was promoted to terminal agent at Fargo, N. D. Mr. Greer was advanced to trainmaster at Minot, N. D., in 1918 and in 1931 he was transferred to Grand Forks, where he remained until his recent promotion, effective January 16.

Birchel R. Dew, whose promotion to superintendent of the Cedar Rapids division of the Chicago, Rock Island & Pacific, with headquarters at Cedar Rapids,

Birchel R. Dew

Iowa, was reported in the *Railway Age* of January 10, was born at Corning, Ohio, on September 19, 1901, and entered railway service on January 10, 1920, on the Monongahela at South Brownsville, Pa. The following month, he resigned to go with the Goodyear Tire & Rubber Co., at Akron, Ohio. On September 27, 1920, he returned to railroad service as a brakeman on the Missouri Pacific at Hoisington, Kan., and on September 23, 1927, he was promoted to conductor. Mr. Dew went with the Chicago, Rock Island & Pacific on June 25, 1936, as a trainmaster at Dalhart, Tex., and on March 15, 1937, he was promoted to assistant superintendent of the Missouri-Kansas division. On January 1, 1940, he was transferred to the Des Moines division, with headquarters at Des Moines, Iowa, where he remained until his recent promotion, effective January 1.

Felix R. Gerard, general superintendent of the Northwestern division of the Pennsylvania, with headquarters at Chicago, has been appointed general manager of the Lehigh Valley, with headquarters at Bethlehem, Pa., succeeding **George Voelkner,** who has resigned to accept service with another company. Mr. Gerard was born at Smith Station (Indiana county), Pa., on August 30, 1887, and obtained a correspondence school education in mining engineering. He entered the service of the Pennsylvania as a yard clerk

Felix R. Gerard

on the Conemaugh division on May 9, 1903, and from 1907 to 1920 he occupied various positions in the transportation and operating departments of this road. In the latter year Mr. Gerard was appointed assistant trainmaster of the Pittsburgh Terminal division, and in 1921 he was made assistant trainmaster on the Conemaugh division. He was promoted to passenger trainmaster on the Philadelphia division in 1926, and was subsequently transferred to the New York division. In 1928 Mr. Gerard was promoted to superintendent of the Long Island, being transferred in 1931 to the Philadelphia division, with headquarters at Harrisburg, Pa. On January 1, 1936, he was promoted to general superintendent of the Northwestern division, with headquarters at Chicago, which position he held until his recent appointment.

David E. Smucker, division engineer of the Toledo division of the Pennsylvania, with headquarters at Toledo, Ohio, has been appointed assistant superintendent of freight transportation, Western region, with headquarters at Chicago, succeeding **A. Mosby Harris,** whose promotion to division engineer of the Renovo division is reported elsewhere in these columns.

Horace B. Stetson, superintendent of the Williamsport division of the Pennsylvania, with headquarters at Williamsport,

Horace B. Stetson

Pa., has been promoted to superintendent of passenger transportation of the Eastern region, with headquarters at Philadelphia, Pa., succeeding **Andrew F. McIntyre,** who has been granted a leave of absence in order to serve in the office of the assistant chief of staff of the United States Army at Washington, D. C. **James E. Vandling,** superintendent of the Erie and Ashtabula division at New Castle, Pa., has been transferred to Williamsport, to succeed Mr. Stetson. **C. E. Alexander,** passenger trainmaster of the Eastern division, has been promoted to superintendent of the Monongahela division at Pittsburgh, Pa., succeeding **J. W. Leonard,** who has been transferred to the Erie and Ashtabula division, to succeed Mr. Vandling.

Mr. Stetson was born on March 9, 1895, at Bristol, Pa., and entered railroad service as a clerk on the New York division of the Pennsylvania on October 12, 1915. He was furloughed for military duty from June 1, 1917, to July 21, 1919, when he returned to the Pennsylvania as assistant yardmaster on the New York division. Mr. Stetson was promoted to passenger yardmaster on April 1, 1925, and advanced to assistant passenger trainmaster on that division on February 1, 1928. He served as passenger trainmaster on the Middle division from September 1, 1936, to February, 1941, with the exception of eight and one-half months, from November 1, 1937, to July 16, 1938, when he had charge of passenger train service on the Baltimore division. Mr. Stetson was appointed superintendent of the Williamsport division in February, 1941, the position he held until his recent appointment.

Paul W. Neff, superintendent of the Philadelphia Terminal division of the Pennsylvania, with headquarters at Philadelphia, Pa., has been promoted to general superintendent of the Northwestern division, with headquarters at Chicago, succeeding **Felix R. Gerard,** who has been appointed general manager of the Lehigh

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Set the Pace

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The Franklin System of Steam Distribution makes available 30 to 40% more horsepower for revenue work — without increasing the size of the locomotive. This large increase is accomplished by means of the following features:

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2. **Absolutely fixed valve events at all speeds and all cut-offs.**
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Install Locomotive Boosters on new or old power and get the added starting effort so necessary in meeting today's time schedules.

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Valley, as reported elsewhere in these columns. **Herman H. Pevler,** superintendent of freight transportation, Eastern region, with headquarters at Philadelphia, has been appointed superintendent of the Philadelphia Terminal division, replacing Mr. Neff, and **H. T. Cover,** superintendent of the Wilkes-Barre division, with

Paul W. Neff

headquarters at Sunbury, Pa., has been promoted to superintendent of freight transportation, Eastern region, relieving Mr. Pevler. **John D. Morris,** division engineer of the Philadelphia Terminal division, has been advanced to superintendent of the Wilkes-Barre division, succeeding Mr. Cover.

Mr. Neff was born at Richmond, Ind., on February 13, 1896. He entered the employ of the Pennsylvania on April 24, 1917, as a yard brakeman on the Richmond division, at Richmond, which position he held until August 7, 1919, when he became yard conductor, with the same headquarters. On November 24, 1927, he was assigned to special duty in the office of the general superintendent of transportation at Chicago, where he remained until February 20, 1928, when he returned to his previous position at Richmond, Ind. Mr. Neff was appointed acting assistant yardmaster of the Fort Wayne division, with headquarters at Crestline, Ohio, on April 16, 1928, and on August 1 of the same year he became assistant yardmaster of the Grand

H. T. Cover

Rapids division at Grand Rapids, Mich., being promoted to yardmaster on September 1, 1928. Mr. Neff was appointed acting assistant trainmaster of the St. Louis division on February 1, 1934; assistant trainmaster of the Philadelphia division on December 1, 1934; and trainmaster of the Wilkes-Barre division on November 21, 1935. He was transferred in the same capacity to the Cincinnati division on January 16, 1937, and to the Columbus division on April 20, 1938. On May 1, 1939, Mr. Neff was promoted to superintendent of the Monongahela division, with headquarters at Pittsburgh, and in June, 1940, he was transferred to the Panhandle division, with the same headquarters. In January, 1941, he was transferred to the Philadelphia Terminal division, where he remained until his recent promotion.

Mr. Pevler was born on April 20, 1903, at Waynetown, Ind., and was graduated from Purdue University in 1927, with the degree of bachelor of science in civil engineering. He entered railroad service with the Pennsylvania on May 4, 1927, as assistant on engineering corps, Philadelphia Terminal division, and was appointed assistant supervisor, Atlantic division, on November 1, 1927, being transferred to the Middle division on September 8, 1928. Mr. Pevler then served as supervisor of track on the Baltimore, Atlantic, Philadelphia and Baltimore divisions, successively. From May 1 to October 1, 1935, he was division

Herman H. Pevler

engineer of the St. Louis division, being transferred to the Fort Wayne division on October 1, 1935, and to the Pittsburgh division on May 1, 1936. He became division engineer in the office of the chief electrical engineer on August 1, 1937, and was transferred to the office of the chief engineer at Philadelphia on July 16, 1938. Mr. Pevler was promoted to superintendent of the Logansport (Ind.) division on April 1, 1939, and became superintendent freight transportation at Philadelphia in April, 1940, the position he held until his recent appointment.

Mr. Cover was born at Altoona, Pa., on August 25, 1897, and entered railroad service in August, 1915, with the Pennsylvania, serving for two weeks as laborer at Altoona. He then served successively as boilermaker's helper in the Juniata shops, draftsman in the office of the general superintendent motive power, special apprentice in the Altoona machine shop, motive power inspector, assistant shop foreman on the New York division, foreman on the same division, shop foreman on the Philadelphia Terminal division and at the East Altoona enginehouse. On January 1, 1931, Mr. Cover became assistant master mechanic of the Maryland division, and was promoted to master mechanic of the Buffalo division on November 1, 1934, being transferred to the Maryland division on April 16, 1937. He served as master mechanic of the Columbus, Cincinnati and Toledo divisions from July 1, 1939, to January, 1940, when he was promoted to superintendent of the Wilkes-Barre division at Sunbury, the position he held until his recent appointment.

TRAFFIC

A. P. Lehman has been appointed general agent, freight department, for the Delaware & Hudson at St. Louis, Mo., succeeding **W. R. St. John,** who has been transferred to Buffalo, N. Y.

M. G. Watson, traveling freight agent for the Chicago, Rock Island & Pacific at Phoenix, Ariz., has been promoted to general agent at that point, succeeding **L. B. Hall,** who has been appointed division freight agent at Lincoln, Neb., succeeding **C. N. Packard, Jr.,** whose promotion to general agent at Pittsburgh, Pa., was reported in the *Railway Age* of January 17. **J. J. Murtagh,** division freight agent at El Dorado, Ark., has been advanced to assistant general freight agent in charge of solicitation at Little Rock, Ark., and **E. B. Wood,** commercial agent at Alexandria, La., has been promoted to division freight agent at El Dorado, relieving Mr. Murtagh.

Charles F. Palmer, assistant general passenger agent of the Boston & Maine, has been promoted to general passenger agent of that road and the Maine Central in charge of sales promotion and military movements, with headquarters as before at Boston, Mass. **Edward P. Shaw,** chief of the ticket and tariff bureau of the Boston & Maine, has been promoted to assistant general passenger agent in charge of rate matters. **Robert F. Cowan,** traveling passenger agent, has been promoted to assistant general passenger agent. No acting passenger traffic manager will be ap-

Charles F. Palmer

pointed during the absence of **H. F. McCarthy** in Washington, where he is serv-

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IMPROVED ARCH BRICK SUPPORT FOR LOCOMOTIVE FIRE BOXES

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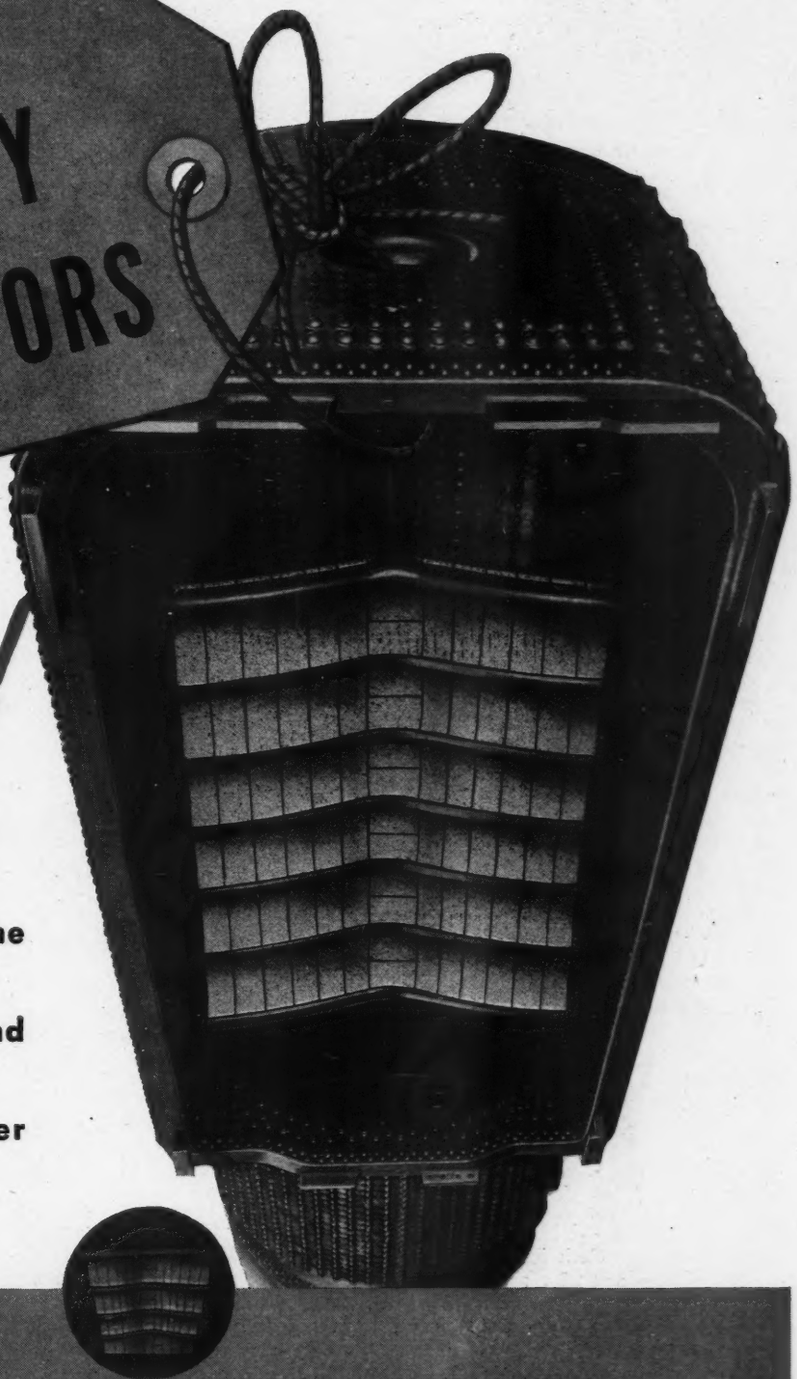
SECURITY
CIRCULATORS



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ing as associate director of traffic movements, Office of Emergency Defense.

Mr. Palmer entered railroad service as a clerk for the Boston & Maine in 1906, resigning in 1909 to become assistant ticket agent of the West Shore. In 1910 he became traveling passenger agent of the Boston & Albany. He served in the United States Navy during the first World War and in 1926 he returned to the Boston & Maine as New England passenger agent, becoming assistant general passenger agent in 1930.

Charles Ketchum Howard, manager, Tourist & Convention bureau, Canadian National, at Montreal, Que., has retired under the pension rules of the company, completing 50 years in transportation activities. **M. E. Doke,** general agent, Passenger department, Montreal, has been appointed general tourist and convention agent, and will carry on the duties previously performed by Mr. Howard.

John Pullen, assistant general freight traffic manager of the Canadian National, with headquarters at Montreal, Que., has been appointed traffic manager of the foreign freight department, with the same headquarters, succeeding **James Morrison Horn,** who has been appointed freight traffic manager of the Western region, with headquarters at Winnipeg, Man., to succeed **W. G. Manders,** retired. **J. M. Macrae,** assistant freight traffic manager of the Western region at Winnipeg, has been transferred to Montreal.

Mr. Pullen was born at Oak Park, Ill., on November 6, 1890, and was graduated from McGill University in 1913. During

John Pullen

the summer months of 1911 and 1912 he was employed as a clerk in the first vice-president's office and also as assistant in the transportation department, entering permanent service with the Grand Trunk on September 18, 1913, as clerk in the tariff bureau at Montreal. On May 1, 1916, he was appointed soliciting freight agent at Montreal and in August, 1923, became chief clerk to the vice-president in charge of traffic. On January 1, 1927, Mr. Pullen was promoted to assistant to the vice-president in charge of traffic and in September, 1932, was appointed regional general freight agent, Central region, Montreal. In April, 1939, he was appointed freight traffic manager, Central region, Montreal, and in October, 1940, he became assistant general freight traffic manager.

Mr. Horn was born at Allanton Mill, County Lanark, Scotland, on April 12, 1880, and commenced his railway career with the old Northern Pacific & Manitoba

James M. Horn

as clerk at Winnipeg in 1898. After almost two years with this company he joined the staff of the Canadian Northern (now Canadian National) at Winnipeg in 1901, where he was promoted from junior positions to city freight agent in 1904 and contracting freight agent in 1908. The following year he went to Edmonton, Alta., as division freight agent and to Winnipeg in 1916 as assistant general freight agent, becoming general freight agent there in 1919. He was transferred to Vancouver in 1921 to take a similar position with the Canadian National and in 1929 returned to Winnipeg as assistant freight traffic manager. Mr. Horn was appointed traffic manager of the foreign freight department at Montreal in May, 1939, the position he held until his recent appointment.

ENGINEERING & SIGNALING

R. C. Lowrey has been appointed resident engineer of the Missouri & Arkansas, with headquarters at Harrison, Ark.

L. M. Elledge, assistant engineer on the International-Great Northern at Palestine, Tex., has been promoted to division engineer of the Houston terminal, with headquarters at Houston, Tex., succeeding **M. B. Kent,** deceased.

A. Mosby Harris, assistant superintendent of freight transportation on the Western region of the Pennsylvania, with headquarters at Chicago, has been promoted to division engineer of the Renovo division, with headquarters at Erie, Pa. **Kirk A. Werden,** supervisor of track on the Maryland division, with headquarters at Wilmington, Del., has been promoted to division engineer of the Toledo division, with headquarters at Toledo, Ohio, relieving **David E. Smucker,** whose appointment as assistant superintendent of freight transportation on the Western region at Chicago is reported elsewhere in these columns. **Ernest R. Shultz,** division engineer of the Columbus division, with headquarters at Columbus, Ohio, has been transferred to the Philadelphia Terminal division, succeeding **J. E. Morris,** whose promotion to superintendent of the Wilkes-Barre division is reported elsewhere in these columns, and **Morton S. Smith, Jr.,** division engineer of the Monongahela division, with headquarters at Pittsburgh, Pa., has been transferred to the Columbus division, replacing Mr. Shultz.

Julius E. Willoughby, whose appointment as consulting engineer of the Atlantic Coast Line at Wilmington, N. C., was reported in the *Railway Age* of December 27, 1941, was born at Arkadelphia, Ala., on October 12, 1871. He attended the University of Alabama, receiving his civil engineering degree in 1892. Mr. Willoughby entered railroad service in 1892 with the Louisville & Nashville and served in various subordinate positions in the Engineering and Land departments until 1899, when he became assistant chief engineer on construction of new lines in Alabama. In 1900 he became engineer of construction of the Alabama & Florida branch of the Louisville & Nashville and in 1902 he became division engineer and chief engineer of the Knoxville, LaFollette & Jellico (L. & N. subsidiary). From 1905 to 1912 Mr. Willoughby was engineer of construction for the Louisville & Nashville, serving as chief engineer of the Caribbean Construction Company and the National Railroad of Haiti from 1912 to 1913. Mr. Willoughby became assistant chief engineer of the Atlantic Coast Line in 1913 and was promoted to chief engineer in 1915, which position he held until January 1, when he became consulting engineer.

Robert Waller Marye, whose promotion to chief engineer of the Atlantic Coast Line at Wilmington, N. C., was reported

Robert Waller Marye

in the *Railway Age* of December 27, was born at Ashland, Va., on December 5, 1891. Mr. Marye attended Randolph Macon College, receiving his B.A. degree in 1912. He entered railroad service on December 5, 1912, with the Atlantic Coast Line, serving successively as rodman, inspector and transitman in the construction department. From May 25, 1915, to October 10, 1916, Mr. Marye served successive-

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ly as rodman, instrumentman and draftsman in the valuation department and on the latter date he became resident engineer in the construction department. From August, 1917, to July, 1919, he served with the United States Army, returning to the Atlantic Coast Line on the latter date as senior assisant engineer in the construction and maintenance of way departments. He served successively as division engineer, assistant engineer of construction, field assistant to chief engineer and assistant to chief engineer from December 1, 1925, to January 1, 1935. On the latter date he was appointed principal assistant engineer, and in July, 1941, he was promoted to assistant chief engineer, which position he held until his recent promotion.

MECHANICAL

Ralph C. Hempstead, whose promotion to assistant superintendent of motive power of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Milwaukee, Wis., was reported in the *Railway Age* of January 17, was born at Nevada, Iowa, on August 5, 1884, and entered railway service on the Chicago & North Western in May, 1900, as a roundhouse laborer, later serving as machinist apprentice, machinist and roundhouse foreman. From 1910 to 1912 he served as a machinist on the Northern Pacific; the Minneapolis, St. Paul & Sault Ste. Marie; and the Minneapolis &

Ralph C. Hempstead

St. Louis, returning to the North Western in the latter year as roundhouse foreman at Norfolk, Neb. On January 1, 1913, Mr. Hempstead went with the Milwaukee as a machinist at Chicago, later being promoted to roundhouse foreman at Tomahawk, Wis., and Wausau. In September, 1918, he was promoted to master mechanic of the Hastings and Dakota division, with headquarters at Aberdeen, S. D., and a year later he was transferred to Madison, Wis. In September, 1920, he was transferred to Ottumwa, Iowa, and in March, 1927, he was transferred to Dubuque, Iowa. Mr. Hempstead was promoted to superintendent of the Milwaukee (Wis.) locomotive shops and foundries in November, 1928. In August, 1933, his title was changed to district master mechanic, with headquarters at Milwaukee, and his jurisdiction was extended to include the Milwaukee, Superior and Madison divisions, which position he held until his recent promotion, effective January 16.

SPECIAL

T. J. O'Shaughnessy, assistant, executive department on the Chicago, Rock Island & Pacific, has been appointed public relations officer, with headquarters as before at Chicago, a change of title.

G. E. Motz, general superintendent of Union Pacific Stages, Inc. (motor transport subsidiary of the Union Pacific) and the Interstate Transit Lines (motor transport subsidiary of the Union Pacific and the Chicago & North Western), has been promoted to general manager, with headquarters as before at Omaha, Neb., a newly created position. **R. J. O'Connor,** traffic manager, has been appointed general traffic manager. **W. H. Kuse,** assistant general superintendent of Union Pacific Stages, Inc., has been promoted to general superintendent, with headquarters at Portland, Ore.

OBITUARY

Edwin J. McGeary, general superintendent of the Bessemer & Lake Erie, with headquarters at Greenville, Pa., died on January 10 of pneumonia, after an illness of two weeks.

William J. Edwards, manager of the Trunk Line Freight Inspection Bureau, with headquarters at New York, died at his home in Scarsdale, N. Y., on January 19 at the age of 59.

Eugene J. Hilgers, assistant general claim agent of the Texas & Pacific, with headquarters at Dallas, Tex., died in an El Paso (Tex.) hospital on December 22 after a long illness.

Culle Hightower, who retired in 1908 as division superintendent on the International & Great Northern (now the International-Great Northern), with headquarters at Mart, Tex., died on December 14 at his home in Ft. Worth, Tex.

William J. Backes, consulting engineer of the Boston & Maine, with headquarters at Boston, Mass., died on January 20 at Massachusetts General Hospital after collapsing at North Station while waiting for a home-bound train. Mr. Backes was born at Hartford, Conn., on April 29, 1879, and received his B.S. degree from Sheffield Scientific school, Yale college, in 1899 and his C.E. degree from Pennsylvania Military college in 1919. Mr. Backes entered railroad service in 1899 as rodman and leveler with the Mexican International. From September to December, 1900, he served as assistant foreman, American Dry-Kiln Co., Mexico, and from 1901 to 1902 he was assistant on engineering corps, Pennsylvania Lines West of Pittsburgh, becoming transitman on that road in the latter year. From 1903 to 1905 Mr. Backes was transitman on the New York, New Haven & Hartford and during the following year he served as assistant engineer on the New York, Pennsylvania & New Jersey (now Pennsylvania). He was chief engineer of the Central New England (now New Haven) from 1906 to 1913, when he became engineer maintenance of way for that road. In 1923 Mr. Backes was appointed assistant general manager of the New York, New Haven & Hartford and he became engineer maintenance of way of the Boston & Maine in 1926. From 1927 to 1936 Mr. Backes was chief engineer of the Boston & Maine and in 1936 he became consulting engineer, which position he held until his death.

Peter J. Coliton, superintendent of the Dakota division of the Great Northern, with headquarters at Grand Forks, N. D., whose death in that city on December 22 was reported in the *Railway Age* of January 17, was born at Grand Forks on February 11, 1889, and entered railway service in June, 1907, as a brakeman on the Dakota division at Larimore, N. D. In 1910 he was transferred to the Butte division at Great Falls, Mont., and a year later he was promoted to conductor on the Dakota division at Grand Forks. In 1914 he was appointed yardmaster at Devils Lake, N. D., and in 1916 he was advanced to trainmaster at New Rockford, N. D. In 1920 Mr. Coliton was transferred to Willmar, Minn., and in February, 1937, he was promoted to superintendent of the Dakota division, with headquarters at Grand Forks, which position he held until his death.

Robert S. Mitchell, chief special agent of the Missouri Pacific Lines, with headquarters at St. Louis, Mo., whose death on January 11 was reported in the *Railway Age* of January 17, was born at Bowling Green, Ky., on September 7, 1870, and attended Ogden college at Bowling Green. For several years he read law in the office of his father, J. A. Mitchell, who was general attorney of the Louisville & Nashville, later serving about two years as deputy circuit clerk of the circuit court at Bowling Green. In 1893 he enlisted in the United States Army, Indian Service, for a three-year period. He became a special agent and claim agent of the Louisville & Nashville in 1896, continuing in that capacity until 1903, except for service as regimental adjutant of the Third Kentucky Volunteers during the Spanish-American War. During the St. Louis World's Fair of 1904 Mr. Mitchell organized the special service department of the Terminal Railroad Association of St. Louis for the handling and protection of visitors to the fair and then served as special agent of that company until 1912, when he went with the Missouri Pacific as chief special agent. Mr. Mitchell continued in this post until his death, except during the period of federal control of railroads when he was chief of the United States Railroad Administration's secret service and police section. In 1920, Mr. Mitchell organized the Protective Section of the American Railway Association, embracing all the protective forces of the railroads in the United States, and served two terms as chairman. He was also one of the chief sponsors of the Carlin act, which makes theft from interstate shipments a felony.

Freight Operating Statistics appear on next left-hand page

Freight Operating Statistics of Large Steam Railways—Selected Items

Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (*thousands*)	Car-miles: Per cent loaded	Ton-miles (*thousands*): Gross excluding locomotives and tenders	Ton-miles (*thousands*): Net revenue and non-revenue	Number of road locomotives on line: Serviceable: Not stored	Number of road locomotives on line: Serviceable: Stored	Number of road locomotives on line: Unserviceable	Number of road locomotives on line: Per cent unserviceable
New England Region:												
Boston & Albany	1941	362	155,816	167,171	15,585	3,789	66.5	220,761	83,161	59	8	20	23.0
	1940	362	147,961	153,425	10,515	3,255	65.4	188,788	67,667	62	11	13	15.1
Boston & Maine	1941	1,894	332,493	378,296	30,749	12,228	68.9	711,199	279,997	141	11	25	14.1
	1940	1,892	294,662	330,938	28,653	10,221	66.8	590,964	218,910	129	..	36	21.8
N. Y., New Hav. & Hartf.†	1941	1,819	411,683	524,778	46,243	15,866	69.7	860,666	336,545	216	3	48	20.7
	1940	1,832	366,536	462,583	30,280	13,239	66.3	733,793	274,555	194	5	63	25.4
Great Lakes Region:												
Delaware & Hudson	1941	849	301,378	352,229	42,669	11,441	65.0	760,916	362,585	131	25	78	33.3
	1940	846	238,925	278,006	31,828	8,933	64.0	564,634	267,274	121	54	70	28.6
Del., Lack. & Western	1941	982	365,426	415,415	58,353	15,280	71.0	903,223	381,417	144	16	44	21.6
	1940	983	358,225	402,659	53,133	13,332	67.9	780,520	306,021	138	8	59	28.8
Erie (incl. Chi. & Erie)‡	1941	2,250	847,253	891,692	50,209	38,550	67.5	2,359,083	926,947	260	49	106	25.5
	1940	2,268	739,469	787,658	47,945	32,289	64.8	2,001,076	770,109	252	5	169	39.7
Grand Trunk Western	1941	1,023	274,755	279,410	2,707	8,649	62.8	541,536	199,615	77	..	12	13.5
	1940	1,023	255,153	257,985	1,584	7,612	61.9	470,425	161,863	77	1	25	24.3
Lehigh Valley	1941	1,251	395,566	433,304	68,764	16,410	68.0	1,035,399	460,541	131	18	36	19.5
	1940	1,252	356,026	389,092	59,722	13,744	65.8	867,432	367,860	111	7	96	44.9
New York Central	1941	10,518	3,325,868	3,560,364	211,131	118,391	60.6	8,093,312	3,479,931	1,049	94	251	18.0
	1940	10,563	2,826,773	3,003,174	192,786	98,663	60.2	6,684,674	2,802,759	969	98	334	23.8
N. Y., Chicago & St. Louis	1941	1,672	702,243	714,990	9,938	24,895	66.4	1,541,866	627,427	150	..	15	9.1
	1940	1,672	545,944	557,059	7,721	20,003	63.4	1,236,849	469,680	132	9	25	15.1
Pere Marquette	1941	2,052	408,635	419,667	8,893	11,752	63.9	750,068	299,213	137	5	23	13.9
	1940	2,080	374,774	382,744	7,913	10,542	61.3	675,939	252,445	121	4	35	21.9
Pittsburgh & Lake Erie	1941	232	101,542	105,030	62	4,063	59.9	351,755	197,884	44	..	17	27.9
	1940	233	86,565	89,386	....	3,487	60.1	299,372	167,809	37	11	14	22.6
Wabash*	1941	2,397	636,042	650,227	13,068	21,973	68.5	1,308,173	509,726	141	30	87	33.7
	1940	2,397	577,247	590,296	11,811	19,111	65.5	1,136,832	412,049	142	26	98	36.8
Central Eastern Region:												
Baltimore & Ohio	1941	6,245	2,103,529	2,636,566	291,295	67,798	61.4	4,796,723	2,200,947	873	53	222	19.3
	1940	6,262	1,639,048	2,039,851	209,338	53,008	61.7	3,699,347	1,680,811	728	127	344	28.7
Central of New Jersey†	1941	661	204,058	228,961	45,445	6,418	62.6	442,028	211,675	85	18	41	28.5
	1940	679	176,390	198,003	36,211	5,628	61.6	395,820	190,816	79	13	54	37.0
Chicago & Eastern Illinois	1941	925	186,493	187,081	3,082	5,241	67.3	333,876	151,296	63	3	23	25.8
	1940	925	175,004	175,008	3,103	4,680	66.9	292,637	126,267	60	1	31	33.7
Elgin, Joliet & Eastern	1941	390	136,269	138,213	1,769	3,735	59.2	293,783	146,484	68	..	10	12.8
	1940	390	121,211	122,640	1,315	3,083	57.0	247,826	121,937	61	..	16	20.8
Long Island	1941	375	27,368	28,571	18,192	265	52.5	19,994	7,665	34	6	8	16.7
	1940	375	28,964	30,305	17,858	303	52.0	22,446	7,911	37	5	6	12.5
Pennsylvania System	1941	9,951	4,100,615	4,817,051	593,404	155,795	62.4	10,790,195	4,916,353	1,794	100	241	11.3
	1940	9,965	3,236,171	3,879,657	451,209	122,460	60.6	8,575,771	3,826,690	1,306	154	727	33.2
Reading	1941	1,430	523,817	584,319	73,359	16,082	63.0	1,165,575	582,081	253	24	62	18.3
	1940	1,441	443,730	496,261	62,371	13,633	61.9	997,990	493,753	213	14	113	33.2
Pocahontas Region:												
Chesapeake & Ohio	1941	3,053	994,176	1,052,771	46,252	46,464	56.0	3,933,626	2,152,837	398	14	80	16.3
	1940	3,058	842,009	889,025	39,352	38,720	57.1	3,186,897	1,744,093	376	52	80	15.7
Norfolk & Western	1941	2,163	760,210	798,344	46,079	34,998	57.2	2,990,000	1,584,334	301	11	23	6.9
	1940	2,169	668,366	698,610	39,431	31,356	58.5	2,564,692	1,347,077	289	34	28	8.0
Southern Region:												
Atlantic Coast Line	1941	5,031	745,478	754,242	10,516	17,799	63.4	1,109,582	442,607	291	5	39	11.6
	1940	5,074	684,952	691,526	10,594	15,333	62.4	930,352	341,221	245	18	49	15.7
Central of Georgia†	1941	1,783	310,388	314,449	5,389	7,211	70.8	433,635	186,459	102	..	17	14.3
	1940	1,831	271,788	274,507	4,145	6,078	69.5	348,685	136,279	98	..	21	17.6
Gulf, Mobile & Ohio	1941	1,962	272,438	324,654	2,515	9,000	70.1	540,977	234,745	96	3	9	8.3
	1940	1,963	243,810	265,527	1,322	7,568	70.5	441,435	183,939	87	8	11	10.4
Illinois Central (incl. Y. & M. V.)	1941	6,521	1,597,769	1,604,796	29,104	49,727	62.2	3,357,441	1,468,280	576	41	95	13.3
	1940	6,557	1,323,679	1,327,071	23,431	39,420	61.4	2,617,860	1,099,948	593	15	168	21.6
Louisville & Nashville	1941	4,794	1,395,963	1,502,570	37,622	34,609	60.3	2,485,415	1,210,532	333	60	66	14.4
	1940	4,862	1,172,813	1,263,940	33,940	29,307	59.5	2,084,096	993,439	360	42	64	13.7
Seaboard Air Line*	1941	4,295	795,539	844,552	8,578	19,753	63.7	1,271,631	523,940	274	..	31	10.2
	1940	4,301	643,611	668,105	5,098	16,266	62.3	1,003,523	382,329	251	3	47	15.6
Southern	1941	6,474	1,827,157	1,860,928	27,743	41,015	65.2	2,530,779	1,067,615	555	..	110	16.5
	1940	6,538	1,496,339	1,523,531	22,291	35,275	65.7	2,083,637	833,980	499	..	131	20.8
Northwestern Region:												
Chicago & North Western†	1941	8,280	977,743	1,011,926	20,716	31,895	63.3	2,036,067	829,270	328	36	211	36.7
	1940	8,324	850,413	891,463	17,166	26,475	63.2	1,697,135	675,100	319	34	254	41.8
Chicago Great Western	1941	1,447	286,375	290,291	10,313	8,770	64.4	549,028	207,081	72	3	10	11.8
	1940	1,447	271,621	275,569	10,009	7,983	61.1	511,770	184,235	73	..	14	16.1
Chi., Milw., St. P. & Pac.†	1941	10,813	1,431,352	1,483,398	57,106	44,348	62.5	2,939,648	1,246,935	474	40	114	18.2
	1940	10,850	1,246,896	1,305,293	52,718	37,355	60.9	2,437,388	975,946	446	62	108	17.5
Chi., St. P., Minn. & Omaha	1941	1,618	234,648	248,456	11,039	6,065	67.6	375,162	155,463	104	16	9	7.0
	1940	1,618	227,434	240,353	10,912	5,244	62.5	331,031	128,570	106	12	14	10.6
Great Northern	1941	7,981	1,138,282	1,135,968	35,015	40,515	62.9	2,799,938	1,226,824	382	28	85	17.2
	1940	7,973	939,819	940,263	33,348	31,219	61.7	2,122,044	879,405	377	37	113	21.4
Minneap., St. P. & S.St. M.†	1941	4,251	453,625	462,684	7,305	11,638	65.2	744,141	322,925	133	..	8	5.7
	1940	4,250	402,495	408,185	3,720	9,276	63.4	570,026	229,217	120	..	9	7.0
Northern Pacific	1941	6,593	903,930	958,442	62,370	33,299	68.5	2,131,413	952,568	351	9	76	17.4
	1940	6,422	720,406	765,055	43,894	24,542	67.5	1,508,377	647,179	345	26	76	17.0
Central Western Region:												
Alton	1941	915	216,293	240,272	999	5,516	66.8	349,478	139,702	61	4	10	13.3
	1940	914	199,976	217,160	925	4,623	64.2	273,386	113,171	60	9	12	14.8
Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.)	1941	13,430	2,741,556	3,024,581	187,159	80,565	60.9	5,378,667	1,852,053	741	20	117	13.3
	1940	13,409	2,174,669	2,372,753	130,272	62,166	60.6	4,029,926	1,322,231	621	49	173	20.5
Chicago, Burl. & Quincy	1941	8,905	1,340,095	1,393,273	45,936	43,541	65.4	2,757,517	1,171,611	441	17	89	16.3
	1940	8,924	1,202,337	1,230,362	47,619	36,088	62.4	2,302,609	922,622	431	26	97	17.5
Chi., Rock I. & Pac.†	1941	7,917	1,205,001	1,227,797	9,654	32,313	63.1	2,040,227	812,971	335	13	143	29.1
	1940	7,867	1,095,386	1,110,880	9,045	26,994	60.1	1,705,978	631,804	324	24	171	32.9
Denver & Rio Gr. Western†	1941	2,422	448,208	508,063	63,647	12,116	65.7	788,616	334,483	160	14	25	12.6
	1940	2,551	326,037	367,800	43,628	9,698	66.5	604,480	254,617	134	26	26	14.0
Southern Pac.—Pac. Lines	1941	8,496	2,021,464	2,255,635	325,211	76,154	66.3	4,856,739	1,888,121	727	8	121	14.1
	1940	8,535	1,745,816	1,902,413	231,116	62,866	63.8	3,995,464	1,449,605	639	16	140	17.6
Union Pacific	1941	9,873	2,885,587	2,984,255	165,859	86,132	64.5	5,393,224	2,049,297	752	16	100	11.5
	1940	9,907	2,267,118	2,353,085	134,562	70,661	62.2	4,449,592	1,589,544	618	44	200	23.2
Southwestern Region:												
Mo.-Kansas-Texas Lines	1941	3,281	440,456	445,217	7,125	11,537	65.0	685,491	263,780	95	..	81	46.0
	1940	3,281	375,518	378,963	5,269	9,850	62.8	599,569	216,455	78	1	94	54.3
Missouri Pacific†	1941	7,110	1,371,264	1,415,852	29,251	42,011	65.0	2,742,035	1,153,541	432	17	60	11.8
	1940	7,116	1,173,752	1,206,372	26,261	34,201	63.3	2,182,445	857,562	390	30	96	18.6
Texas & Pacific	1941	1,891	296,756	296,756	1,651	10,185	67.0	631,597	252,031	80	28	76	41.3
	1940	1,882	259,899	259,899	1,361	8,370	61.6	541,762	198,474	78	19	93	48.9
St. Louis-San Francisco†	1941	4,732	840,192	862,349	15,042	19,400	63.6	1,234,990	501,570	288	8	27	8.4
	1940	4,735	740,031	753,509	12,448	16,474	61.8	1,055,139	421,359	279	34	27	7.9
St. Louis-San Fran. & Texas	1941	159	28,042	28,235	43	456	63.9	27,666	10,235	11	1	1	7.7
	1940	159	28,153	28,167	....	396	57.6	26,631	9,956	11	2	2	13.3
St. Louis Southw. Lines†	1941	1,600	360,469	371,475	4,824	11,402	74.4	651,354	278,354	92	11	22	17.6
	1940	1,633	281,103	283,089	3,625	8,405	66.1	495,939	167,599	83	17	14	12.3
Texas & New Orleans	1941	4,415	781,531	781,722	4,403	20,915	69.2	1,323,227	569,697	232	17	17	6.4
	1940	4,415	640,427	640,436	4,640	15,430	63.4	991,244	383,438	215	2	42	16.2

* Report of receivers.
† Report of trustee or trustees.
‡ Under trusteeship, Erie R. R. only.

for the Month of November, 1941, Compared with November, 1940

Region, road, and year	Number of freight cars on line: Home	Foreign	Total	Per cent unserviceable	Gross ton-miles per train-hour, excluding locomotives and tenders	Gross ton-miles per train-mile excluding locomotives and tenders	Net ton-miles per train-mile	Net ton-miles per loaded car-mile	Net ton-miles per car-day	Car-miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotives and tenders	Locomotive miles per locomotive-day
New England Region:													
Boston & Albany 1941	598	5,294	5,892	0.6	24,380	1,432	539	21.9	476	32.6	7,658	145	75.7
1940	767	5,207	5,974	1.3	21,835	1,294	464	20.8	378	27.8	6,231	148	68.3
Boston & Maine 1941	3,213	9,799	13,012	2.7	30,936	2,144	844	22.9	690	43.7	4,928	94	82.8
1940	4,228	8,635	12,863	3.0	28,631	2,013	746	21.4	560	39.1	3,857	99	75.8
N. Y., New Hav. & Hartf.† 1941	4,296	17,254	21,550	2.9	30,419	2,122	830	21.2	512	34.6	6,167	103	78.5
1940	6,708	14,602	21,310	3.8	28,530	2,033	761	20.7	430	31.3	4,996	109	69.0
Great Lakes Region:													
Delaware & Hudson 1941	6,120	4,908	11,028	4.9	40,852	2,544	1,212	31.7	1,052	51.1	14,236	105	58.2
1940	7,909	3,731	11,640	4.0	37,515	2,378	1,125	29.9	753	39.3	10,531	117	43.8
Del., Lack. & Western 1941	8,928	9,826	18,754	3.1	42,623	2,496	1,054	25.0	710	40.0	12,947	126	81.8
1940	9,946	6,850	16,796	4.4	38,964	2,201	863	23.0	620	39.8	10,377	131	76.8
Erie (incl. Chi. & Erie)‡ 1941	12,518	22,763	35,281	2.4	48,920	2,805	1,102	24.0	883	54.3	13,733	95	82.7
1940	13,051	18,407	31,458	2.6	47,337	2,726	1,049	23.9	818	53.0	11,318	98	71.9
Grand Trunk Western 1941	3,296	8,389	11,685	3.8	37,119	1,986	732	23.1	562	38.8	6,504	87	113.9
1940	3,399	8,774	12,173	6.8	34,914	1,850	637	21.3	444	33.7	5,274	96	94.0
Lehigh Valley 1941	7,192	15,629	22,821	0.9	48,476	2,668	1,187	28.1	711	37.2	12,271	112	96.6
1940	8,802	10,113	18,915	1.1	47,205	2,480	1,052	26.8	642	36.5	9,794	111	74.2
New York Central 1941	66,142	75,127	141,269	5.8	40,575	2,455	1,056	29.4	810	45.5	11,028	101	100.4
1940	78,125	60,137	138,262	9.8	39,402	2,383	999	28.4	670	39.2	8,845	103	85.7
N. Y., Chicago & St. Louis 1941	4,653	12,107	16,760	2.4	41,516	2,199	895	25.2	1,254	74.9	12,509	94	153.9
1940	5,858	9,102	14,960	2.7	41,998	2,270	862	23.5	1,026	68.9	9,364	92	121.6
Pere Marquette 1941	5,925	8,558	14,483	2.7	31,709	1,845	736	25.5	691	42.5	4,861	99	97.0
1940	6,919	8,585	15,504	2.1	29,962	1,812	677	23.9	545	37.1	4,046	99	91.0
Pittsburgh & Lake Erie 1941	8,305	8,310	16,615	8.3	44,616	3,472	1,953	48.7	431	14.8	28,432	87	64.5
1940	10,757	6,666	17,423	14.2	45,216	3,467	1,943	48.1	327	11.3	24,007	91	51.5
Wabash* 1941	8,979	12,379	21,358	0.9	41,725	2,084	812	23.2	833	52.4	7,088	112	90.0
1940	10,396	10,728	21,124	3.6	40,478	1,989	721	21.6	654	46.3	5,730	116	79.2
Central Eastern Region:													
Baltimore & Ohio 1941	48,651	38,722	87,373	2.5	30,877	2,323	1,066	32.5	829	41.6	11,748	144	90.1
1940	50,265	29,480	79,745	6.8	30,844	2,292	1,041	31.7	696	35.6	8,947	144	66.9
Central of New Jersey† 1941	6,663	17,387	24,050	2.0	29,110	2,259	1,082	33.0	295	14.3	10,674	139	83.3
1940	6,611	12,095	18,706	9.8	28,972	2,390	1,152	33.9	331	15.9	9,368	127	70.0
Chicago & Eastern Illinois 1941	2,485	3,940	6,425	3.2	32,156	1,810	820	28.9	822	42.3	5,452	127	74.9
1940	2,827	3,229	6,056	7.3	30,582	1,685	727	27.0	689	38.2	4,550	129	68.0
Elgin, Joliet & Eastern 1941	8,881	8,512	17,393	3.4	16,506	2,217	1,105	39.2	282	12.2	12,520	128	92.8
1940	9,050	6,816	15,866	4.1	17,426	2,098	1,032	39.6	254	11.3	10,422	127	79.9
Long Island 1941	49	3,309	3,358	0.7	5,534	749	287	28.9	71	4.6	681	323	45.5
1940	75	3,404	3,479	0.7	6,155	796	280	26.1	70	5.2	703	318	49.2
Pennsylvania System 1941	150,058	98,058	248,116	6.3	37,957	2,698	1,229	31.6	664	33.7	16,469	109	92.4
1940	173,287	63,983	237,270	14.2	39,057	2,707	1,208	31.2	533	28.1	12,800	111	72.5
Reading 1941	17,117	20,986	38,103	6.5	27,271	2,233	1,115	36.2	521	22.8	13,568	133	76.4
1940	21,373	14,860	36,233	13.4	27,826	2,257	1,117	36.2	453	20.2	11,422	134	62.7
Pocahontas Region:													
Chesapeake & Ohio 1941	44,388	15,533	59,921	0.9	57,221	3,993	2,185	46.3	1,237	47.7	23,505	74	83.2
1940	46,157	12,061	58,218	1.6	54,768	3,821	2,091	45.0	1,003	39.0	19,011	75	67.6
Norfolk & Western 1941	33,538	6,151	39,689	1.7	61,924	3,989	2,114	45.3	1,356	52.3	24,416	87	90.8
1940	38,286	6,329	44,615	2.1	59,715	3,893	2,045	43.0	995	39.6	20,702	89	75.8
Southern Region:													
Atlantic Coast Line 1941	10,867	10,370	21,237	5.6	25,638	1,493	596	24.9	695	44.1	2,933	109	81.4
1940	13,213	9,674	22,887	14.2	24,231	1,363	500	22.3	511	36.8	2,242	109	77.8
Central of Georgia† 1941	3,001	5,040	8,041	0.9	26,605	1,411	607	25.9	732	40.0	3,486	122	96.9
1940	4,257	3,554	7,811	2.4	25,446	1,287	503	22.4	592	38.0	2,481	122	83.7
Gulf, Mobile & Ohio 1941	2,852	5,278	8,130	2.1	35,979	1,991	864	26.1	946	51.8	3,988	112	106.9
1940	3,365	3,481	6,846	4.2	32,769	1,813	756	24.3	878	51.2	3,123	109	87.6
Illinois Central (incl. Y. & M. V.) 1941	26,929	25,263	52,192	1.1	34,587	2,139	936	29.5	951	51.8	7,505	126	81.2
1940	27,896	17,694	45,590	2.0	31,982	2,003	841	27.9	778	45.4	5,592	132	62.1
Louisville & Nashville 1941	36,103	12,393	48,496	1.7	27,593	1,784	869	35.0	859	40.7	8,417	126	117.5
1940	35,118	10,312	45,430	5.7	28,474	1,780	849	33.9	733	36.4	6,811	128	98.7
Seaboard Air Line* 1941	9,857	12,348	22,205	2.1	27,576	1,637	675	26.5	799	47.3	4,066	125	104.4
1940	11,267	8,818	20,085	3.3	27,510	1,590	606	23.5	654	44.6	2,963	119	83.1
Southern 1941	19,596	25,798	45,394	4.1	23,632	1,401	591	26.0	791	46.6	5,497	144	99.4
1940	21,404	22,229	43,633	9.4	24,253	1,403	562	23.6	633	40.8	4,252	139	85.1
Northwestern Region:													
Chicago & North Western† 1941	30,706	25,836	56,542	4.3	31,502	2,151	876	26.0	496	30.1	3,338	123	64.8
1940	31,277	22,112	53,389	5.3	30,532	2,045	814	25.5	415	25.7	2,703	124	54.8
Chicago Great Western 1941	1,717	4,015	5,732	2.0	36,340	1,920	724	23.6	1,175	77.2	4,770	120	126.2
1940	1,854	4,043	5,897	1.0	34,525	1,888	680	23.1	1,007	71.4	4,244	124	116.5
Chi., Milw., St. P. & Pac.† 1941	35,573	22,767	58,340	1.3	33,423	2,063	875	28.1	716	40.8	3,844	118	88.8
1940	40,244	22,515	62,759	2.8	31,793	1,965	787	26.1	532	33.4	2,998	123	79.8
Chi., St. P., Minn. & Omaha 1941	2,076	6,753	8,829	4.1	22,470	1,620	671	25.6	581	33.5	3,203	115	69.4
1940	2,401	6,065	8,466	7.1	20,056	1,470	571	24.5	503	32.9	2,649	123	67.4
Great Northern 1941	28,560	16,642	45,202	2.3	38,314	2,474	1,084	30.3	896	47.1	5,124	102	84.7
1940	30,802	10,544	41,346	3.7	35,052	2,272	942	28.2	681	39.2	3,677	115	67.3
Minneap., St. P. & S.St. M.† 1941	10,305	4,890	15,195	3.0	28,843	1,647	715	27.7	699	38.6	2,532	100	113.7
1940	11,056	4,576	15,632	4.0	23,975	1,424	573	24.7	482	30.8	1,798	109	109.1
Northern Pacific 1941	24,205	9,389	33,594	5.3	38,423	2,369	1,059	28.6	944	48.2	4,816	125	85.1
1940	26,385	6,636	33,021	5.3	33,297	2,105	903	26.4	646	36.3	3,359	138	66.5
Central Western Region:													
Alton 1941	1,156	6,063	7,219	3.1	39,307	1,627	650	25.3	664	39.2	5,089	135	112.6
1940	1,313	5,131	6,444	6.9	34,423	1,371	568	24.5	562	35.7	4,127	142	94.2
Atch., Top. & S. Fe (incl. G. C. & S. F. & P. & S. F.) 1941	57,125	19,135	76,260	4.0	38,669	1,967	677	23.0	821	58.7	4,597	120	127.0
1940	60,084	13,325	73,409	7.8	36,897	1,861	611	21.3	608	47.2	3,287	123	104.3
Chicago, Burl. & Quincy 1941	22,976	20,912	43,888	2.0	36,082	2,067	878	26.9	921	52.3	4,386	112	94.0
1940	25,187	18,674	43,861	3.7	33,345	1,922	770	25.6	706	44.3	3,446	118	82.0
Chi., Rock I. & Pac.† 1941	16,280	15,540	31,820	3.4	31,723	1,697	676	25.2	867	54.6	3,423	114	89.1
1940	17,621	11,295	28,916	4.7	29,465	1,560	578	23.4	719	51.1	2,677	122	76.4
Denver & Rio Gr. Western† 1941	9,075	5,019	14,094	2.8	28,363	1,767	749	27.6	766	42.2	4,603	169	101.4
1940	10,253	4,314	14,567	3.3	29,151	1,862	784	26.3	569	32.6	3,327	165	78.8
Southern Pac.—Pac. Lines 1941	27,406	40,435	67,841	2.4	35,699	2,416	939	24.8	899	54.7	7,408	103	105.5
1940	26,532	30,245	56,777	4.1	37,386	2,304	836	23.1	853	58.0	5,661	101	94.5
Union Pacific 1941	33,749	27,905	61,654	5.1	39,023	1,887	717	23.8	1,042	67.9	6,919	131	126.1
1940	33,544	23,396	56,940	4.7	42,524	1,982	708	22.5	923	66.0	5,348	128	100.6
Southwestern Region:													
Mo.-Kansas-Texas Lines 1941	5,038	5,809	10,847	10.7	29,608	1,559	600	22.9	816	55.0	2,680	92	91.6
1940	5,058	3,888	8,946	7.3	31,885	1,597	577	22.0	801	58.1	2,199	89	78.3
Missouri Pacific† 1941	13,048	30,537	43,585	1.2	35,728	2,011	846	27.5	902	50.6	5,408	117	102.5
1940	15,258	19,765	35,023	2.0	33,383	1,868	734	25.1	817	51.5	4,017	123	86.8
Texas & Pacific 1941	2,961	6,221	9,182	1.8	36,811	2,134	852	24.7	946	57.0	4,443	87	59.1
1940	3,451	5,521	8,972	1.7	36,463	2,085	764	23.7	765	52.4	3,515	89	50.0
St. Louis-San Francisco† 1941	12,172	9,281	21,453	2.8	29,057	1,481	601	25.9	791	48.1	3,533	129	96.1
1940	14,308	6,143	20,451	2.3	27,655	1,432	572	25.6	688	43.5	2,966	127	78.8
St. Louis-San Fran. & Texas. 1941	.....	345	345	7.5	20,817	992	367	22.4	927	64.7	2,146	136	73.8
1940	.....	424	424	4.0	20,038	946	354	25.1	830	57.3	2,087	136	73.0
St. Louis Southw. Lines† 1941	1,725	4,760	6,485	1.1	35,550	1,810	774	24.4	1,497	82.4	5,799	86	106.4
1940	2,154	3,471	5,625	1.3	33,696	1,766	597	19.9	949	72.0	3,421	89	89.1
Texas & New Orleans 1941	4,744	13,038	17,782	2.5	32,277	1,715	738	27.2	1,086	57.6	4,301	86	104.9
1940	5,428	11,829	17,257	3.4	28,367	1,561	604	24.9	755	47.9	2,895	92	88.2

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Table of Operating Revenues and Expenses appears on second left-hand page

GENERAL MOTORS
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DIVISION

LA GRANGE, ILLINOIS, U. S. A.

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 133 Monthly Reports of Revenues and Expenses Representing 137 Class I Steam Railways
(Switching and Terminal Companies Not Included)

FOR THE MONTH OF NOVEMBER, 1941 AND 1940

Item	United States		Eastern District		Southern District		Western District	
	1941	1940	1941	1940	1941	1940	1941	1940
Miles of road operated at close of month	231,980	232,670	57,063	57,340	44,033	44,248	130,884	131,082
Revenues:								
Freight	$385,240,971	$315,233,605	$161,684,155	$133,284,083	$76,416,548	$62,575,554	$147,140,268	$119,373,968
Passenger	40,518,769	31,244,152	21,353,083	17,552,127	6,598,383	4,121,608	12,567,303	9,570,417
Mail	9,150,279	8,579,140	3,353,073	3,326,573	1,579,932	1,472,260	4,217,274	3,780,307
Express	3,076,587	4,664,677	898,705	2,021,114	639,497	870,641	1,538,385	1,772,922
All other operating revenues	19,025,247	15,777,279	9,299,032	7,924,515	2,399,789	1,900,362	7,326,426	5,952,402
Railway operating revenues	457,011,853	375,498,853	196,588,048	164,108,412	87,634,149	70,940,425	172,789,656	140,450,016
Expenses:								
Maintenance of way and structures	53,965,478	39,611,914	21,390,811	16,032,613	9,140,439	7,486,594	23,434,228	16,092,707
Maintenance of equipment	91,040,655	69,077,134	41,623,618	31,779,406	16,832,321	13,346,655	32,584,716	23,951,073
Traffic	9,744,393	8,800,436	3,461,511	3,117,357	1,897,610	1,796,377	4,385,272	3,886,702
Transportation—Rail line	164,523,655	128,125,632	74,717,245	58,320,029	26,897,315	21,230,735	62,909,095	48,574,868
Transportation—Water line	14,722	532,568	.....	.....	.....	.....	14,722	532,568
Miscellaneous operations	4,292,212	3,066,661	1,886,496	1,404,627	567,088	362,178	1,838,628	1,299,856
General	12,414,751	10,661,780	4,929,727	4,216,436	2,318,447	2,068,803	5,166,577	4,376,541
Transportation for investment—Cr.	381,751	358,276	97,532	84,076	57,381	46,266	226,838	227,934
Railway operating expenses	335,614,115	259,517,849	147,911,876	114,786,392	57,595,839	46,245,076	130,106,400	98,486,381
Net revenue from railway operations	121,397,738	115,981,004	48,676,172	49,322,020	30,038,310	24,695,349	42,683,256	41,963,635
Railway tax accruals	40,585,778	33,690,328	17,071,602	14,741,699	10,416,790	7,650,137	13,097,386	11,298,492
Railway operating income	80,811,960	82,290,676	31,604,570	34,580,321	19,621,520	17,045,212	29,585,870	30,665,143
Equipment rents—Dr. balance	9,099,041	7,841,219	4,821,447	3,697,147	†123,832	219,091	4,401,426	3,924,981
Joint facility rent—Dr. balance	2,948,075	2,889,231	1,603,042	1,559,920	298,439	337,039	1,046,594	992,272
Net railway operating income	68,764,844	71,560,226	25,180,081	29,323,254	19,446,913	16,489,082	24,137,850	25,747,890
Ratio of expenses to revenues (per cent)	73.4	69.1	75.2	69.9	65.7	65.2	75.3	70.1
Depreciation included in operating expenses	18,213,628	17,150,377	7,777,538	7,374,000	3,803,579	3,488,192	6,632,511	6,288,185
Pay roll taxes	12,928,237	9,789,134	5,672,405	4,350,196	2,223,442	1,723,813	5,032,390	3,715,125
All other taxes	27,657,541	23,901,194	11,399,197	10,391,503	8,193,348	5,926,324	8,064,996	7,583,367

FOR ELEVEN MONTHS ENDED WITH NOVEMBER, 1941 AND 1940

Item								
Miles of road operated at close of month*	232,209	232,856	57,189	57,372	44,145	44,302	130,875	131,182
Revenues:								
Freight	$4,058,345,607	$3,229,061,017	$1,733,588,666	$1,365,778,567	$790,330,172	$646,551,296	$1,534,426,769	$1,216,731,154
Passenger	460,818,745	376,428,477	237,900,884	205,121,061	76,987,381	53,173,276	145,930,480	118,134,140
Mail	96,012,552	89,783,105	35,520,998	34,507,377	16,455,083	15,295,858	44,036,471	39,979,870
Express	51,505,653	49,762,670	20,152,614	21,160,836	10,168,747	9,555,203	21,184,292	19,046,631
All other operating revenues	200,457,287	171,029,349	98,023,995	83,439,166	24,557,982	21,087,722	77,875,310	66,502,461
Railway operating revenues	4,867,139,844	3,916,064,618	2,125,187,157	1,710,007,007	918,499,365	745,663,355	1,823,453,322	1,460,394,256
Expenses:								
Maintenance of way and structures	547,226,198	460,737,817	221,744,743	179,470,656	95,027,310	85,146,142	230,454,145	196,121,019
Maintenance of equipment	899,067,647	748,547,006	418,664,493	337,946,913	166,600,181	146,935,975	313,802,973	263,664,118
Traffic	102,083,651	98,441,513	36,577,676	35,575,726	19,932,328	18,993,616	45,573,647	43,872,171
Transportation—Rail line	1,595,623,021	1,359,318,451	735,572,606	621,970,603	266,333,694	230,039,680	593,716,721	507,308,168
Transportation—Water line	3,116,808	6,056,759	.....	.....	.....	.....	3,116,808	6,056,759
Miscellaneous operations	42,549,720	35,347,686	18,363,879	15,568,784	5,985,148	4,740,019	18,200,693	15,038,883
General	125,554,113	119,644,781	49,570,249	47,564,554	24,431,418	23,248,862	51,552,446	48,831,365
Transportation for investment—Cr.	3,578,011	4,069,693	635,032	757,414	645,233	685,156	2,297,746	2,627,123
Railway operating expenses	3,311,643,147	2,824,024,320	1,479,858,614	1,237,339,822	577,664,846	508,419,138	1,254,119,687	1,078,265,360
Net revenue from railway operations	1,555,496,697	1,092,040,298	645,328,543	472,667,185	340,834,519	237,244,217	569,333,635	382,128,896
Railway tax accruals	514,630,465	369,814,166	218,147,517	156,053,784	128,200,245	84,033,443	168,282,703	129,726,939
Railway operating income	1,040,866,232	722,226,132	427,181,026	316,613,401	212,634,274	153,210,774	401,050,932	252,401,957
Equipment rents—Dr. balance	93,274,167	88,172,734	45,245,213	42,559,846	745,025	2,319,679	47,283,929	43,293,209
Joint facility rent—Dr. balance	30,803,540	30,360,924	16,770,078	16,773,630	3,389,167	3,184,001	10,644,295	10,403,293
Net railway operating income	916,788,525	603,692,474	365,165,735	257,279,925	208,500,082	147,707,094	343,122,708	198,705,455
Ratio of expenses to revenues (per cent)	68.0	72.1	69.6	72.4	62.9	68.2	68.8	73.8
Depreciation included in operating expenses	198,420,132	188,350,233	86,799,564	81,844,722	40,431,709	37,964,178	71,188,859	68,541,333
Pay roll taxes	124,435,378	106,438,552	55,417,405	46,743,072	21,515,707	18,964,312	47,502,266	40,731,168
All other taxes	390,195,087	263,375,614	162,730,112	109,310,712	106,684,538	65,069,131	120,780,437	88,995,771

† Decrease, deficit, or other reverse items.
* Represents an average of the mileage reported at the close of each month within the period.
Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

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